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ORIGINAL ARTICLES.

HYSTERECTOMY FOR SUPPURATIVE DISEASE OF THE PELVIC ORGANS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. M. BALDY, M.D.

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When on the evening of Oct. 5, 1893, I read before the Obstetrical Society of Philadelphia, a paper entitled "Removal of the Uterus and its Appendages for Pelvic Inflammatory Disease," and for the first time proposed this procedure as a matter of election, my remarks met with a strong protest and almost universal disapproval. At almost the same time, Polk made a similar proposition in a paper read before the New York Obstetrical Society, which was received by an almost equal amount of condemnation.

During May, 1894, I read a paper on the same subject before the American Gynecological Society at its Washington meeting, and it proved to be a matter of considerable surprise that in the short interim so large a number of the members had already practiced and approved the new procedure, as was developed by the discussion. Since that time, I have had many opportunities of demonstrating the feasibility and advisability of this operation to many physicians visiting Philadelphia from all sections of the United States, and find that many of them on returning home have adopted the method.

To-day the operation is established on a sure and firm basis, and many women who were before doomed to a partial recovery are now blessed with a complete return to health. My object in again encroaching upon the time of the profession with this subject, is not that I believe anything is needed to establish its feasibility, but rather to again freshen the minds of those who may feel that hysterectomy is either a more difficult or more dangerous operation in these cases than salpingo-oöphorectomy. For this purpose it may not be out of place to once more review certain general considerations arising in this connection which were formulated in my paper before the American Gynecological Society one year ago. I there propounded the question, "Is the uterus essential or useful after the ovaries have been removed?" At that time I assumed, and still assume, that this query can only be answered in the negative. If it is granted that the uterus, deprived of its appendages, is a useless organ in the human economy, as far as its relation to this matter is concerned four questions are pertinent:

1. Are all patients cured after an operation requiring double salpingo-oöphorectomy?

2. Are patients cured after hysterectomy when double salpingo-oöphorectomy has failed?

3. Does the operation of hysterectomy increase the mortality over that of double salpingo-oöphorectomy?

4. Is the retention of the uterus of any disadvantage or danger to the patient?

As to the first and fourth questions nothing can be added in answer, other than was advanced in the paper to which reference has already been made. There is no one who has practiced gynecologic surgery to even a limited extent, but who knows that patients suffering from chronic pelvic inflammatory disease are not always cured of their symptoms by the removal of the tubes and the ovaries alone. The matter is so notorious that it is hardly necessary to more than call attention to the fact to quiet any criticism from this direction. As to whether or not patients are cured after hysterectomy, when double ovariotomy has failed, as stated in my former paper experience must decide. I there said: "In my paper read before the Philadelphia Obstetrical Society, Oct. 5, 1893, two cases are reported in which the uterus had been removed subsequent to a simple extirpation of the appendages. After the primary operation these patients had continued to suffer from leucorrheal discharges, bleeding and pain. The secondary operation for removal of the uterus proved that the appendages had been thoroughly and completely extirpated at the first operation and that no such cause as incomplete removal existed to account for the continued suffering. The removal of the uterus in both cases cured the patients, and at the present writing they both remain in good health.

"Two other similar operations have been performed since that time with like results."

It may be stated that these four patients now, a year and a half later, remain in good health without any return of their old symptoms. I am at this time able to add two cases to this list, with like results, making a total of six patients who have been rescued from chronic invalidism by a hysterectomy subsequent to a double salpingo-oöphorectomy. During this period, from fifteen to twenty patients have passed through my hands on whom the salpingo-oöphorectomy had failed to relieve the symptoms, but whom I was unable to persuade to try the hysterectomy, on account of their suffering at their former operation and a sentiment against losing the womb, which many women by reason of false professional teaching appear to consider a vital organ. These facts seem to answer my second question most emphatically and in the affirmative.

The whole subject must after all hinge upon the answer to the third question, "Does the operation of hysterectomy increase the mortality above that of double salpingo-oöphorectomy?"

If the mortality be increased and the relief be not commensurate, the proposed procedure must fall and we must return to the old one of double salpingo-oöphorectomy, or seek for a substitute in some other direction. That much greater and surer relief of

symptoms are obtained has already been demonstrated. In my paper of last May there are reported twenty-two patients who were suffering from chronic pelvic inflammatory disease, upon whom I had performed hysterectomy. In that report I said: "Of this number all recovered from the operation, and the great majority have been cured. My highest mortality in the past has always followed removal of the appendages in this same class of patients. At no time have I been able to pick out anything like twenty-two successive successful double ovariotomies in cases of the same character as those upon whom I have found it advisable to perform hysterectomy. Not only has hysterectomy, in my hands, lessened the mortality very markedly, but it has rendered the convalescence infinitely smoother, easier and more satisfactory."

At the present time, I have twelve more to add to the list, making in all thirty-four cases without a death.

In addition to my own cases, I may submit in evidence the work in this same direction by other operators to date: Baldy, 34 cases, no deaths; Kelly, 70 cases, no deaths; Polk, 20 cases, 1 death; Pryor, 9 cases, no deaths; King, 65 cases, 4 deaths; Penrose, 25 cases, 1 death—making a grand total of 223 cases with 6 deaths, a mortality in the hands of six operators of 2.7 per cent.

What better argument can one possibly offer in favor of any new procedure? A greatly lessened mortality, a surer and more thorough relief of symptoms, an easier and shorter convalescence, a freedom from any possible future disease of the womb! Can there be any who are yet skeptical?

Hysterectomy being determined to be the proper procedure in certain chronic pelvic inflammations, it remains to determine in what cases to choose this operation. In this connection, I can not do better than quote *verbatim* from my last paper on the subject:

"It is well-known in pelvic inflammation the disease first affects the mucous membrane lining the womb and, secondarily, invades the Fallopian tubes and the pelvic peritoneum. In many cases not only is the endometrium affected, but the inflammatory products invade the deeper structures which go to make up the uterine walls. These infiltrates undergo the same changes as do the same elements in the walls of the Fallopian tubes whether it be suppuration or partial organization; in either case the process is apt to become a permanent one.

"With Fallopian tubes and uterus, both of which are diseased by the same factor and to the same extent, is it reasonable to suppose that a cure is to be always obtained by the removal of the tubes alone? Theory and practice both combine in this matter to force the conclusion.

"It must not be understood that the removal of the uterus together with the Fallopian tubes and ovaries is recommended in all cases of pelvic inflammatory disease. I am forced to dissent at this point from the views of some other surgeons with whose opinions in other respects I am thoroughly in accord. In many cases the uterus, possibly on account of its anatomic relations which are so favorable to good drainage, has succeeded in throwing off the original infection and is comparatively healthy, if not entirely so. Under such circumstances, hysterectomy is not indicated. But where an abdominal section has been performed for the removal of the uterine appendages and the womb is found enlarged and diseased, especially if it has been surrounded by extensive adhesions, the destruction of which leaves large areas of denuded peritoneum, hysterectomy should be the operation of choice. Even when the uterus is not greatly diseased, if during the course of the operation it be largely denuded of its peritoneal covering, it is best to complete the operation by its removal.

"The sole objection which could be urged against this procedure is an increased mortality; but, since this has been proved fallacious, opposition from any standpoint must necessarily be withdrawn. It is freely granted that in accepting this practice, uteri will often be removed which might safely have been left behind. Even in the face of this possibility the procedure is fully justified, in view of the possibility of future harm on the one hand and the certainty of no extra risks on the other.

"The decisive *pro* or *con* is at times a difficult one at the time of the operation, in which case the patient should be given the benefit of the doubt and the uterus should be removed. In all cases it is assumed that both ovaries must of necessity be sacrificed. Except in the presence of malignant or tubercular disease, the womb should never be disturbed if even a portion of one ovary and a Fallopian tube can be preserved. Nor is an operation to be extended to the performance of hysterectomy, where the double salpingo-oöphorectomy will even temporarily answer the purpose, should the patient be in such condition that the prolonged manipulation might render the result of a given case doubtful. Common sense must be used in the application of this principle, as in all other surgical procedures."

VAGINAL HYSTERECTOMY FOR SUPPURATIVE DISEASE AND ITS RESULTS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY I. S. STONE, M.D.

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Since we have found that the uterus may be removed by the vagina with less shock to the patient than by the abdominal method, we may consider the operation of abdominal hysterectomy as well applied to other diseased conditions than cancer, for which the operation was first designed.

Dr. Engleman has well set forth the historical facts in papers recently published (Trans. Southern Surgeons and Gynecologists' Association, 1893-94). The uterus has been successfully removed so often for cancer by various surgeons as to no longer admit of doubt in any respect as to its low rate of mortality, or the vast number of complete and permanent cures.[1] This satisfactory result has induced the writer in common with many others, to remove the uterus and the adnexa by the vaginal route for the following reasons:

1. In cases where partial hysterectomy had been done by the supravaginal method, leaving a sinus or fecal fistula.

2. Where operations have been performed for salpingitis or purulent collections within the pelvis,

[1] The writer has only one return of the growth in his experience, a case in which the bladder was involved at time of operation. The patient, however, is still living in comparative comfort, although slight return nearly three years after operation.

leaving extensive adhesions and often an irritative endometritis and vaginitis.

3. In sepsis of the uterus (septic metritis) as after abortion, etc.

4. In purulent collections outside the uterus, pelvic abscess especially when the disease is extensive.

This classification indicates the evolution of the operation in the writer's hands. Every operator of experience must have encountered difficulties when he attempted to deal with fecal fistula or old sinuses after operations for pus, when there may or may not be tubercular disease of the region involved. I have myself encountered peculiar and insurmountable difficulties on a second opening of the abdomen in such cases. For these conditions the writer finds in vaginal hysterectomy a solution of the problem, and to which he resorts with the utmost confidence.

The second class of cases also affords a degree of comfort to the operator, and relief to the patient in no other way so safely and satisfactorily obtained. In a large number of these cases the uterus was intensely septic when the tubes and ovaries with their purulent contents were removed. Adhesions must frequently follow in the wake of such conditions, giving pain to the patient and at times anxiety to the surgeon.

In addition to these results of operations for disease outside of the uterus, we occasionally find patients who after an ideal operation do not have a satisfactory recovery. They may continue to menstruate. They may have a decided endometritis and vaginitis. I have had my share of these cases, and without hesitation advise hysterectomy to complete the cure, for I know of nothing more annoying than these post-operative symptoms which have their origin chiefly within the uterus, and which no amount of local treatment will cure.

In the third class we must likewise give the preference to the vaginal method for many reasons: 1, because of less traumatism and consequently less shock to the patient; 2, because the time required is less, and because we can secure thorough drainage, and if necessary we can complete the operation without prolonged or profound anesthesia. The abdomen must always be closed with the patient under profound anesthesia if we would avoid all danger of catching the omentum or loops of bowel in the sutures, as may happen at the close of the operation, especially if the patient vomit. In many cases we may be in doubt as to the extent of sepsis outside the uterus and here we can remove diseased adnexa, or separate intestinal adhesions, with the positive certainty that only good can follow such surgery, if indeed any surgery can save the patient. In a recent case I lost a patient after supravaginal extirpation of the uterus when the vaginal method might have succeeded, in a case of sepsis following abortion. The vessels of the broad ligaments were loaded with thrombi, plainly seen at the time of the operation. The case was exactly parallel to one reported by Dr. Baldy in the *New York Journal of Gynecology and Obstetrics* for March. My patient, like his, developed croupous pneumonia, and died two weeks after the operation. In my case I made a very unfavorable prognosis, and the patient died, as I predicted, of pneumonia. Dr. Baldy says his patient would have recovered but for the pneumonia; I was not so sanguine about my own case. It is worthy of note that these two cases, reported so nearly at the same time, should have died of croupous pneumonia and not septic or pyemic embolic pneumonia. In view of this, and other reasons, I shall hereafter regard the vaginal route as offering many advantages over the abdominal in such cases.

Lastly, we shall consider the removal of the uterus for the purpose of entirely eradicating septic foci from the pelvis of women who have had gonorrheal or other sepsis which has extended into tubes and ovaries or even beyond this limit. When Dr. Baldy read his paper in Washington before the American Gynecological Society in 1893, I was not prepared to take this step, for the reason that I could not believe so many uteri were the seat of septic disease in the body of the uterus itself. I was confident that the endometrium was almost entirely and alone the seat of the disease. A curetting ought to cure this, and I argued that if we sealed up the cornua of the uterus, no further infection of the peritoneum could or would probably occur. But increasing experience has shown that the position assumed by Dr. Baldy and others is right, at least in a majority of cases. If we examine uteri removed in operations for purulent collections in the pelvis, we will often find abscesses in the uterine wall. These pus collections may give the appearance of small fibroids under the peritoneum, and even with the uterus in my hand in one case, I was about to demonstrate to visitors a small fibroid, and found an abscess containing one-half drachm of pus.

In conclusion, then, the writer would in many pus cases, and especially where we have very ill patients and extensive suppurative disease, suggest a trial of this operation. In the technique of the operation I can not yet follow our German and French brethren, who so confidently resort to the morcellement operation, and use the forcep clamp to the exclusion of the ligature. But I do find the operation wonderfully facilitated by amputation of the lower third of the uterus, as soon as the broad ligaments are separated thus far. The fundus uteri can then be readily turned forward, and the operation at once becomes simplified and facilitated, because it is completed in full view, permitting the separation of remaining bowel adhesions with the help of the sight added to that of touch.

Of one feature of the new operation I can not speak with experience. The pus sacs, according to Jacobs, may be left and merely washed out and packed with gauze; this gauze to remain four to six days. This feature is repugnant to my taste, and not in accord with surgical experience. To remove the uterus and leave these pathologic and wholly useless organs appears unsurgical. We are told that actual results show the innocuousness of these pus sacs if properly drained. Again, in nearly all the cases where gauze packing is used, and comes in contact with peritoneum, we will find it firmly adherent in twenty-four to forty-eight hours, and requiring decided force for its removal. Hence many surgeons are avoiding the use of gauze for drainage. It surely drains for a short time only, and then it becomes an obstruction to drainage, and when removed denudes the peritoneum over the intestine or elsewhere of its epithelium and invites the formation of adhesions.

After reciting these reasons for extirpation of the uterus, we may well ask, Why not remove the uterus in all cases where it is now only useless, as without the appendages, but is also dangerous when it is the seat of numerous abscesses. We may therefore con-

clude that when the uterus is to be extirpated for any purpose, the vaginal route is to be preferred to the abdominal. There is less danger of peritoneal infection, less traumatism and shock, and the resulting cicatrix is not a permanent source of annoyance to the patient. The writer confidently asserts that in the future there will be relatively more vaginal and fewer abdominal extirpations of the uterus for pelvic disease.

INDICATIONS FOR TOTAL HYSTERECTOMY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY AUGUSTUS P. CLARKE, A.M., M.D.

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I can vividly recall to mind the able discussion which took place at Washington in 1887, during the meeting of the Ninth International Medical Congress, on the subject of extirpation of the uterus for relief of carcinoma. Since that time my attention has been more particularly directed to the subject.

At the time that the treatment of cancer by extirpation of the uterus was brought before the congress, I felt that the advocates of the measure had taken an advanced step. We all now recognize that the various procedures necessary in abdominal surgery have been more carefully considered and that the individual experiences have tended to do much toward placing that kind of work on a firmer basis. So far as statistics are concerned, as to the results of the different cases treated, they can not afford any very definite help, for in dealing with any case in which hysterectomy is indicated we shall find that the result will depend on many and often upon diverse factors, often upon the individual skill of the operator, upon a wise selection of the case, careful discrimination and accuracy of diagnosis, upon a full appreciation of the fact that the morbid process to be relieved is the chief offending cause of the illness, and that there is not some more obscure and dangerous lesion that may give rise to the suffering. Assuming that these conditions have been met, the success of the case may often depend upon the facility with which the method of technique can be carried out.

The results achieved by the method of operating by the employment of the hysterectomy staff have led to the consideration of the use of other means for overcoming the difficulties encountered in a total hysterectomy. We are still more fortunate in having brought to our attention the perfection of other devices, the proper employment of which can greatly facilitate the most difficult part of the operation and give assurance that the entire cervix in a vagino-abdominal hysterectomy may be removed without incurring danger to the paracervical structures.

By means of the intra-uterine stem attached to a disk or cap, as a center for hermetically sealing the parts from the foci of infection, and also of a staff to assist in elevating the uterus and the morbid mass to be extirpated, as devised by my friend, Dr. A. H. Tuttle, we are enabled to remove by total hysterectomy many tumors, neoplastic developments, and to relieve other conditions that have been deemed most difficult to overcome by the older operative measures. From the help that may be thus gained, and from experiences in other directions, it is not unsafe to say that total hysterectomy is indicated, *cæteris paribus*, in cases in which the uterus may be in a position opposite to that of prolapse and in such a state of immobility, superinduced by previous inflammatory processes affecting the adnexa and producing such adhesions of those parts, as to necessitate for relief operative interference. In an operation for overcoming the adhesions, it will be found that the appendages, by the previous morbid condition that had been set up, have undergone destructive degenerative changes. In deciding in such cases that total hysterectomy should be attempted, the question of moral consideration will not be involved, for the reason that the uterus itself will in all probability be found to have lost its functional activity. By the facility with which the whole organ can be removed by the operator's adopting the improved methods of technique, the dangers usually attendant on the carrying out of such radical measures will be greatly lessened.

Total hysterectomy should be had recourse to in cases of rapidly growing interstitial fibroids, or in cases of large subperitoneal growths developing from a broad sessile base. The operation is indicated, not only from the hemorrhage which they occasion, but also from the pressure which may take place upon the surrounding parts, and from the obstruction they may produce in the vascular tissues in the abdominal and pelvic organs. Palliative measures of treatment, including employment of electricity, may be helpful in overcoming hemorrhage, but the adoption alone of such a course of procedure must necessarily prove disappointing. The importance of resorting to total hysterectomy will be appreciated when the real history of the degenerative processes of such tumors has been more carefully considered.

If a large and rapidly growing fibroid should take on a retrograde process, either spontaneously or through the influence of regular and systematic treatment by electrolysis, or otherwise, the positive ultimate dangers arising from the presence of such a growth will be far from being wholly removed, for in such a stage, when the patient is seemingly improving, the morbid growth may afford a culture chamber into which other disease cells may migrate and then undergo a malignant degeneration. In such a condition, total hysterectomy is the only expedient that will afford a complete and permanent cure. A fibroid tumor developing in the interstitial and parietal portions of the uterus may so extend as to involve the entire body of the organ, overlapping and inclosing in large measure the adnexa, and taking a downward course, include and bury the cervical structures also. In this condition the morbid growth involving the uterine structures may elevate itself from the lower pelvic cavity and thus afford a greater facility for removal through an abdominal section. This was the special feature in one of Dr. Tuttle's cases, to which I was also called, when total hysterectomy was accomplished by a vagino-abdominal incision.

The removal of a fibroid should not be deferred because it appears, or is first observed, at or near the menopause, for it is not infrequent for such a tumor to continue to develop long after the occurrence of that period, and it may assume all the phases and present all the untoward results that are attendant on one that has had an earlier beginning. Treatment of fibroids by a resort to salpingo-oöphorectomy, to

say the least, is of doubtful utility; this method for awhile may give seemingly beneficial results. When it does so, it is evidently because the growth is principally sustained by the ovarian artery; in other cases the results following this method are so unimportant that an operation would seem to offer but little advantage. There are undoubtedly many cases of fibroids in which the nourishment is at certain periods of their growth derived chiefly from the uterine artery. There are also cases of uterine myomata, in which the physical condition of the patient will not warrant a resort to hysterectomy. In this class of cases the method adopted by our President, Dr. Franklin H. Martin, of ligating these vessels has proved to be of considerable service. With our advanced knowledge, however, of the pathology of these neoplasms, and with our increasing experience and achievements in abdominal surgery, we should not advise a woman who is comparatively free from disease, except from the effects which a fibroid may have occasioned, to rest content with merely submitting to such an uncertain surgical measure.

A nodular fibroid of the slower growth should not be regarded with unconcern, for the pressure that may be made by the mass upon the surrounding parts, and especially upon the ureters, may cause chronic edema and finally contracting kidney, as did once occur in one of my own cases, in which the autopsy showed that had the growth been removed the renal lesion would undoubtedly have been avoided and the patient's life been saved. In this connection it might be remarked that the effects of pressure are to be considered, aside from malignancy, as among the most baneful influences that are attendant on the presence of uterine and ovarian tumors. Uterine myomata in all their various stages call for removal; this should be effected as early as possible. In certain cases the curette can be advantageously employed; if this method is unsuccessful, hysterectomy should be the next surgical expedient. In one case in which a multilocular fibroid appeared, there was but little enlargement of the uterus. Hegar's method for removal of the uterine appendages was performed by a distinguished surgeon resident in another State; the patient, however, did not recover until after the lapse of six years, when she submitted to total hysterectomy.

The ordinary methods of treatment of the more extended forms of adenoma frequently prove unavailing. The study of the pathology of adenomatous formations shows that the hypertrophy of the glands of the lining membrane often extends throughout the entire cavity of the mucous lining. When a uterus has once been affected with this kind of morbid process and the condition does not speedily yield to curettement and to other milder measures of treatment, a more radical course should be instituted. Total hysterectomy offers the best advantage for permanent relief. After sarcoma in any part of the uterine system has been suspected to exist it should be an indication for action; its malignant nature and its unfavorable tendencies when viewed according to the present light afforded by the pathologic history is unquestioned. As in the early stages of cancerous disease, before the para-uterine tissue has become involved in the morbid process, so in sarcomatous developments partial removal by the supravaginal method will prove inadequate; nothing less than total ablation of the uterine tissue, including the entire cervix as well as the fundal portion, should for the most part be deemed sufficient for a cure.

The question has been asked, Should hysterectomy be resorted to for ovarian tumors? In answer to this it may be stated that carcinoma appearing in the ovary is almost always dependent upon the disease previously occurring to some extent in the uterine tissue. Not long since I was called to a case in which the adnexa had a year before been removed for what then appeared to be a malignant condition of those parts. Since that time the uterus and the parametrian tissue had become extensively involved. Had total hysterectomy been carried out at the time of the first operation, before the cancerous elements had advanced, the patient could undoubtedly have been saved. According to later observation and experience, sarcomatous developments occurring in the ovary should be promptly removed; this can best be effected by total hysterectomy. When papilloma and fibroma occurring as ovarian tumors are recognized at an early stage of their existence, and before they have extended downward to the neighboring tissues, they should be thoroughly and promptly removed, even if it has to be done at the sacrifice of the uterus and its appendages.

It should be here stated that carcinomata and sarcomata in all their various forms call for immediate and thorough removal as soon as a diagnosis of the condition can be made. Experience, however, shows that the results following the removal by hysterectomy of a sarcomatous growth, when the operation is undertaken in a late stage of its existence, will prove to be more satisfactory than will those that may be attendant on the removal, by this method, of a cancerous mass at a similar stage of its existence.

Total hysterectomy is absolutely necessary for uncontrollable prolapse, after anterior and posterior colporrhaphy and other plastic operations have been repeatedly tried, but have failed to produce permanent relief. In such cases the vaginal method is the operation to be preferred. Total hysterectomy is the only safe surgical expedient to be adopted in cases of hemorrhagic polypi which present suspicious microscopic appearances after removal, and which leave as a result an enlarged uterus, as may be determined by palpation or by the sound.

Hysterectomy is called for in ectopic pregnancy; in such cases the hemorrhage can be more safely controlled, and the patient is enabled to make a more rapid recovery than by the other methods of procedure. This method of treatment should be undertaken in ovarian abscess, in pyosalpinx, in old inflammation of the appendages, in a post-clinical severed uterus which has been productive of pain and has been a source of disablement. The operation should be resorted to in all suspicious diseases of the adnexa and in cases of large cysts, as well as in papillomatous developments and in otherwise irremovable cysts and intraligamentous fibroids and tumors of the broad ligaments.

Later experiences show that total hysterectomy can be accomplished with as little danger as may be attendant on many other important surgical measures. When properly performed, there is often but little tenderness left about the vicinity of the broad ligaments. When done in ectopic pregnancy, in ovarian abscess, in pyosalpinx and in purulent liquifaction of a uterine fibroid better drainage can be established. On the other hand, when the uterus or

a portion of it is left, the condition resulting is liable to be followed with many complications, with uterine catarrh, malignant degeneration, certain neuroses and with other sequelæ of a painful or of a clinically depressing nature.

Another advantage total hysterectomy insures is that the posterior and anterior folds of the pelvic tissue can be brought together and united by suturing so as to secure better results than when other surgical methods are employed. In bringing these folds together after the uterus has been totally removed, their margins can be turned outward and downward; this arrangement of the parts will thus practically invest the operation with all the advantages that can be secured by the choice of the extraperitoneal method.

I have already stated that the vagina is the natural avenue through which an uncontrollable prolapsed uterus may be removed. This avenue for removal should be especially chosen when the uterus is not enlarged, or when the condition of prolapse is not complicated with the presence of a fibroid or other tumor. In such cases the technique of the operation may not be as difficult to carry out and the patient may not be exposed so long to the influence of the anesthetic as by other methods. The consequent shock will, therefore, not be as great. The same method may occasionally be recommended when hysterectomy is indicated for a cancerous affection which has not extended beyond the cervical portion of the uterus. In those cases, however, of cancer in which the fundus is involved, total ablation of the uterus can best be effected by the vagino-abdominal method. I am not unaware that statistics have been brought forward to show that the adoption alone of vaginal hysterectomy when undertaken by certain operators has yielded exceptionally good results. In all reports in which such records have been established by work accomplished on a large number of cases I have often felt that the many favorable terminations were, after all, but mere coincidences, or that only those cases for operation were selected that would be advantageous to the showing.

TOTAL HYSTERECTOMY BY A NEW VAGINO-ABDOMINAL METHOD.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ALBERT H. TUTTLE, S.B., M.D.

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Those of you who have seen much of the work in total extirpation of the uterus, have watched the progress of the cases through convalescence, and have studied the after results will, I believe, no longer express a doubt of the greater value of the total over the partial methods of hysterectomy, but will agree that the now important question for consideration is in regard to the method to be pursued and to the detail of operative finish.

Owing to the variety of conditions for which the operation is indicated, and the great diversity of circumstances under which the operation is performed, no one method will entirely do away with all others, but improvements in the technique of any one will give it a wider range of usefulness, which must necessarily be at the loss of some other.

In determining the value of an operation for total extirpation of the uterus, statistics of mortality, the principal items formerly considered are important, but now they can not be entirely relied upon, because owing to the improvement in methods, and the increased skill of the operator, death should be unusual, and depend much more on the disease and condition of the patient than on the operation *per se*. The fatal cases should first be considered individually, noting their differences in strength and natural vitality, the variety and extent of the pathologic conditions and complications, and the ability of their several operators to deal equally well with a given technique. They should then be compared with those nearest alike that have recovered in the same series, and again with like cases in the series of other operators who have selected another technique. Finally, one should reason *a priori*, like a skilled mechanic who studies a problem set before him for the first time, noting the dangers and difficulties in each movement necessary to attain a given result, comparing the various means which the method offers for reducing the amount of technical skill necessary for the operator and for obviating the danger of injury to contiguous parts during the dissection, as well as for furnishing the requirements of the patient's life, health, and rapid convalescence, expressed in a short operation, little ether, diminished shock, etc.

It was after a careful consideration of these various circumstances, and a review of the advantages and disadvantages peculiar to the several techniques of vaginal and abdominal hysterectomy that I have conceived the following operative method, selecting the best parts in each other operation, avoiding, so far as possible those attended by greater difficulties, and meeting the new requirements by special means.[1] I have developed it by careful study of every case, slightly modifying the order of detail procedures and now and then improving the instruments in such manner as to require the least possible time for their manipulation.

I have repeatedly put the method to a practical test, under most trying circumstances, inviting the inspection and criticism of many members of our profession, and now in a more mature condition it affords me pleasure to offer it for the consideration of this honorable body.

The vagino-abdominal method of hysterectomy is characterized by a division of the labor into two parts vaginal and abdominal.

The *vaginal* part consists of:

1. Sterilization of the cervix and vagina and their maintenance in this condition by closure of the uterine canal with a metal stem which also serves as a guide for the limits of the cervix and for the attachment of an elevating staff.

2. Abcision of the vagino-uterine attachment; dissection of the cervix from the bladder in front and the peritoneum behind, and the packing of the cavity thus formed with gauze.

3. The closure of the vaginal vault from below.

In all, except cases of cervical cancer, the order of items 1 and 2 are partly reversed.

The *abdominal* part consists of:

1. Opening of the abdomen by a median incision.

2. Ligaturing and section of the ovarian vessels and lateral folds of the broad ligament.

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[1] First communicated to the Gynæcological Society of Boston in the early spring of 1894, and later presented in a paper at the June meeting of the Cambridge Medical Improvement Society. ("Total Extirpation of the Uterus by a New Method," *Boston Medical and Surgical Journal* Oct. 18, 1894.)

3. Incision of the peritoneal covering of the uterus in front and behind and its separation, with the bladder, to the lines of vaginal dissection.

4. Clamping of the uterine vessels, abcision and removal of the uterus.

5. Eversion of the flaps of peritoneum, with the ovarian stumps, and closure of the lower abdominal opening with concealed sutures, the serous surfaces in contact.

6. Closure and hermetically sealing of the external abdominal wound.

The special instruments employed in the operation are the uterine stems and the elevating staff. The uterine stem is a device used to cork up the contents of the uterus; to give support and attachment to a staff used for elevating the uterus; and to serve as a guide for determining the position and limits of the cervix. It consists of a cap to cover the cervix, and a central stem that fits into the canal, the whole being cast and turned from one piece of metal. The cap is concave on one side and convex on the other, has a groove in the edge to serve as director, and a number of T-shaped slots about the periphery for holding sutures. The central stem, two inches long, is either smooth or has a thread cut upon it, and is held in place either by the thread or by a line of sutures. Perforating the stem for the depth of an inch is a conical shaped cavity which receives the staff and holds it by a simple slip joint. The staff is a steel rod bent on the curve of a prostatic catheter, except that the point is directed a little more outward, and is made to fit the cavity of the stem. Both instruments are inserted through the vagina, but the stem is removed with the uterus from the abdominal opening.

Preparation of the Patient.—When the result of an examination determines for the first time the requirement of hysterectomy, the physical and constitutional condition of the patient is carefully noted, and unless this is favorable for an operation she is placed on tonic treatment and the heart beat regulated. Especial attention is paid to the examination of the urine and kidneys, which almost always show some defect, and unless there is about the normal secretion of solid constituents, operation is deferred. If the uterus is enlarged and filled with soft cancerous or sarcomatous material, and for some time previously has been emitting a serous or bloody discharge, a preliminary thorough curettement, followed by rest in bed, will result in a very short time in the temporary improvement of the physical condition of the patient.

For a few days before the operation the patient is given a liquid diet and kept quiet in bed. By packing the vagina daily for a week before the operation it will be stretched and softened considerably and give greater facility for the after manipulation. The day before the operation the bowels are thoroughly cleared of all fecal matter and made less septic by the administration of 10 grains of calomel in one dose, about noon, followed by teaspoonful doses of magnesium sulphate every hour until several movements have occurred. The hair over the pubes is then shaved away; the patient given a warm bath, and scrubbed with soap, rinsed with bichlorid solution (1 to 5,000), which is allowed to dry on, dressed in sterilized clothing, and put to bed, with a bichlorid pad over the abdomen, between sterilized bed clothing. For supper is given a hot drink of malted milk or similar food. On the morning of, and at least four hours before, the operation, rectal enemata of warm water are repeatedly given until the return is clear, then a vaginal douche of bichlorid (1 to 1,000). The lower limbs are clothed with woolen wraps; 2 ounces of whisky and 20 minims of freshly prepared tincture of digitalis are administered by the rectum before the patient is taken to the operating room, and at the beginning of the operation 1–4 gr. morphin, 1–150 gr. atropia, and 1–10 gr. strychnia are given subcutaneously in one dose. In order to avoid all unnecessary length to the period of anesthesia, the ether is not given until the preliminaries are nearly completed, and in the beginning is often substituted by the use of chloroform, either pure or in the form of the A. C. E. mixture.

Operation.—A short speculum is introduced into the vagina and the perineum depressed. With the help of vaginal retractors the cervix is exposed to view, and drawn as far as it will come into the introitus by means of tenacula forceps. A probe is now passed, and the direction, shape and size of the uterine canal determined. Unless the canal is freely patent it is dilated, and treated with equal parts tincture of iodin and carbolic acid, applied on a cotton stick. If the character of the disease is other than cervical cancer, a circular incision is made, simply cutting through vaginal structures about the uterine neck, keeping as close to the os as possible, yet at the same time sufficiently remote to include all diseased tissues, as in the usual manner of performing vaginal hysterectomy.[2] The uterus is now separated from its anterior and posterior attachments and coverings as freely as possible, by means of the finger or handle of a scalpel, and then the cut margin of the vagina is caught with forceps and loosened sufficiently to allow it to be drawn together and sutured. A line of continuous suture is taken about a quarter of an inch from the cut margin, and is like the ordinary purse-string suture except that the first stitch which is placed at the back, is carried around the vaginal artery, the suture drawn so as to leave both ends of even length in the vagina, the threads crossed, and then one side of stitches taken with one end, and the other with the remaining end. In this manner the principal vessel is caught in a loop and when the ends of the suture are drawn tight, not only is the vault of the vagina closed in, but also any tendency to hemorrhage from the vaginal artery is obviated.

The patient is now placed in position for abdominal section, with means ready for obtaining the Trendelenburg posture. The usual incision is made and of variable length to meet the requirements of the case. The peritoneal cavity is opened at the upper angle of the wound, in order that the position of the bladder can be determined before the opening is completed and injury to it avoided. The incision is carried close to the pubes to gain as much room as possible for working in the pelvis. The contents of the abdomen are carefully inspected and the method of dissection determined. If the case is a simple enlarged uterus with appendages approximately normal, the tumor is drawn out of the wound and to one side; the fold of broad ligament, including the tube and

[2] In most cases this maneuver is comparatively simple, but with a large tumor in a single woman, somewhat advanced in age, with a rigid vagina narrowed and elongated by long continued upward traction exerted by the uterus as it is forced out of the pelvis to seek room for the growing tumor, and with a cervix perhaps almost entirely "taken up" by the distension exercised by the new growth; or, with a senile uterus firmly fixed by old adhesions in the upper region of the pelvis and nearly hidden from external inspection by the contraction of the vagina that often occurs after a certain age, it is a matter of great difficulty, and contrary to what might be expected, little help will be gained by incision of the sphincter vaginæ.

ovary of the other side is put on the stretch, and a row of sutures passed below the ovary from close to the side of the uterus to the free margin of the ligament, so as to include the ovarian artery. This line of sutures is inserted by means of a perineal needle; is taken like a shoemaker's stitch, but each stitch—which includes but a small amount of tissue—is drawn tight and secured by taking a turn of the loose end of the suture about the other, so as to form a series of single knots. The uterus is then pulled over to the other side, and the remaining tube, ovary, vessel and ligament secured in the same manner. The ligaments are cut away above the ligatures; and between the points of their excision, across the uterus in front and back, about an inch above the attachment of the bladder anteriorly, and an inch above the cervix posteriorly, the peritoneal covering of the womb is incised. With the help of a scalpel handle, the bladder and peritoneum are now rapidly dissected up from the uterus in front until the line of former vaginal dissection is reached; the posterior layer of peritoneum is treated in the same manner; the sides of the uterus are freed from peritoneum as much as possible; when the lateral attachments, including the uterine artery, can be easily clamped, and the organ cut away, and removed. In cutting away the uterus keep as close to that organ as possible.

During the dissection an assistant holds up firmly the uterus by means of the staff which shortens and defines the neck, and enables the operator to quickly and easily perform what is usually the most difficult part of the operation, the enucleation of the cervix. An uterine stem is then selected, according to the length of the cervix and size of the canal; with a soft uterus and large easily dilatable cervix, one with a wide thread is used, but with a cirrhotic organ, one with a fine thread or even smooth stem is preferable.

The uterine stem is inserted and forced into place, after filling the cap with iodoform either by simple pressure, or in case one with a thread is used, by turning it up with a screw-driver, at the same time holding the cervix firmly by means of tenacula forceps fixed into the anterior and posterior lips. If the case is one of cervical cancer the stem must be inserted before any incision is made, and the contents of the uterus and infective parts tightly sealed by sewing the vagina to the edge of the metal cap with sutures taken through normal vaginal structure, and sufficiently remote from the uterus to include all diseased tissue. One should then proceed as above described for non-infective cases.

It is often advisable to tie a smooth stem into the cervix with one or more sutures to prevent slipping. The staff is now inserted into the central cavity of the uterine stem and held in place by an assistant; the parts sponged clean and dry; tampon of iodoform gauze packed into Douglas' pouch, under the peritoneum, and between the cervix and bladder; and the ends of the purse-string-like suture drawn tight and tied, closing in the vault of the vagina below the cervix, gauze and uterine stem, except for a small opening through which the staff passes.

In exceptional cases, already mentioned, not only is this careful toilet of the vagina very difficult or impossible, but unnecessary and time consuming, and should be omitted. In these cases it is better to simply make a circular incision through the vagina, free the cervix, and then pack hard about the cervix and the whole vaginal cavity with sterile gauze. This elevates the uterus, pushes the ureters further away to the sides of the pelvis, and serves as a guide during the dissection in the abdominal cavity.

The gauze packing acts also as a guide, and is of material assistance during this dissection. The uterine vessels are firmly ligatured with kangaroo tendon, the clamps removed and all oozing of the blood from the pedicles stopped by suturing. The anterior and posterior peritoneal flaps are brought together; the cut edges are turned in so as to bring the serous surfaces into contact, and the stumps containing the ovarian arteries are folded in at the angles so as to become extraperitoneal, the whole being closely united by a line of blind sutures, which when drawn tight are situated outside of the peritoneal cavity. All clots are removed by dry sponging, the abdominal wound closed layer by layer with animal ligature, and finally sealed with cotton and collodion.

Although ordinarily it is preferable to remove the ovaries, should one or both be found firmly bound down by old adhesions and in a cirrhotic condition, it is better to leave them *in situ* than to delay the operation by such time necessary for their removal. They will, as a rule, give rise to no further symptoms, as has been repeatedly demonstrated by vaginal hysterectomy, where often they must necessarily be left behind.

When a large multiple fibroid mass is encountered, the topography of the parts must be carefully studied and the position of the bladder and, if possible, the ureters, determined. If the growth forms with the uterus a single tumor, the same directions for operating as above described hold good, but where there are several distinct tumors, which are sessile in attachment and appear to have a large pedicle, a sufficiently long cross incision is made through the peritoneal covering, and each tumor is enucleated as far as possible. By this means the pedicle will usually be found much smaller than expected, forming a part of the uterine attachment, and easily included in the clamp employed for securing the uterine vessels of the same side. Care must be taken in cutting and dissecting back the peritoneal covering not to tear or injure the ureter, the position of which can not always be recognized. If it is determined passing over the tumor it should be dissected up and carried to one side with the overlying flap of peritoneum, but if it can not be distinguished, any and all tissue which resembles it should be treated in the same manner, and as the clamps are applied prior to the final abcision, bear in mind the watchword of this operation, *stick close to the uterus.*

If, upon opening the abdomen, bladder, omentum, bowels, uterus, tubes and ovaries present as a confused and conglomerate mass, firmly bound together by adhesions, the uterus can still be removed subperitoneally, as follows: a point is selected on the fundus of the uterus that is not obscured by adherent viscera, and a small cross incision made through the peritoneal covering. The edges can then be picked up with forceps; the opening intelligently enlarged without injury to the adherent organs; and the peritoneum dissected from the uterus in every direction, well down on the sides and sufficiently to admit of the easy adjustment of the clamps. The organ is cut away, the vessels secured, and the peritoneal openings closed as before, leaving the tubes and pelvis under the peritoneum to drain *per vaginam.* In other words, the uterus is removed by the

combined method with the same consideration for its surroundings which the French operators have when they extirpate by the vaginal method.

The advantages of the vagino-abdominal method over the vaginal method are:

1. The peritoneal cavity is completely closed, and left with no raw surface for subsequent adhesion with viscera.

2. Primary union is the rule and convalescence rapid.

3. The subsequent complication of rectocele or vesicocele is avoided.

4. The uterine vessels in all cases can be perfectly secured and there is no danger of secondary hemorrhage.

5. Abscesses of the tubes and ovaries are more completely removed.

Over the abdominal methods:

1. Complete subperitoneal drainage can be established.

2. The length of time which the peritoneal cavity is exposed is greatly reduced by the previous vaginal dissection, and shock is consequently diminished. (A large uterus can be removed in from twenty to thirty minutes.)

3. The limits of the cervix are closely defined and the necessary extent of the dissection readily determined.

4. The asepsis is more complete and there is less danger of subsequent infection.

Over both:

1. The dangers of hernia are reduced; vaginal over the vaginal method; ventral, over the extraperitoneal treatment of a constricted stump.

2. Danger of injury to the ureters is avoided.

3. The manipulation is easier in the most difficult parts of other operations.

4. There is less danger of injury to the bladder and other viscera.

5. Hemorrhage from the vaginal artery is avoided.

6. The operation is practically bloodless.

7. It offers a means for removing large uterine tumors with extensive adhesions, which could only be done with great difficulty or not at all by the other methods.

8. Its greater perfection of the principles of modern aseptic surgery.

Appended are the reports of six consecutive cases, all of which made a good recovery, that illustrate the principles of the method:

Case 1—Sarcoma of uterus. Vagino-abdominal hysterectomy. Recovery. Family physician, Dr. E. de la Granja. Mrs. L. W., nullipara, several miscarriages, married. First seen, February, 1894. Age 60 years, housewife. Family history not ascertained. Previous history; good health until a few months ago; tumor detected a year ago; later, watery and bloody discharges, progressive weakness, emaciation, attack of la grippe, circumscribed peritonitis, and distress with pressure symptoms. Previous treatment with ergot and tonics. Present condition extremely weak and nervous, tumor reaching to umbilicus; bloody and watery discharges; emaciated; frequent attacks of pain; insomnia; requires much opium. Physical examination; enlarged uterus, short cervix, long, narrow and rigid vagina, clean os; sound passes four and one-half inches; lungs, heart and kidneys normal. Urine low sp. gr., 1015; no albumin. Preliminary treatment: removal of nearly a quart of soft, friable, sarcomatous tissue by curetting in two sittings, the second necessitated as the great loss of blood and feeble condition of the patient during the first attempt would not admit of it being finished. Tonics and stimulants. Curettings February 12 and March 17.

Operation of hysterectomy April 10, 1894. The patient made a good recovery, enjoyed fair health during the summer and moved out of town, thus passing out of my hands. I learned that she died with symptoms of renal disease during the early winter.

Case 2.—Multinodular fibroid uterus. Vagino-abdominal hysterectomy. Family physician Dr. F. C. Osman, of Dorchester, Mass. Mrs. S., married, 1-para, no miscarriages, first seen, April, 1894. Age 42, housewife. Family history negative. Previous history: a slowly developing tumor of the right broad ligament, cystic, causing such disturbance that its removal was advised and performed by Dr. Wm. T. Lusk, six years previous, and at the same time both ovaries were also removed. Small multiple fibroids had been recognized before, and the diagnosis was verified at the time of operation. The health improved, but there was constant pain, discomfort and disability up to the present time, with swelling of left leg of recent origin. She had received various anodyne, stimulating, tonic, and local treatment, without much benefit. Perineorrhaphy seven years ago. At the time of operation she was pale, emaciated, feeble, but of a cheerful and hopeful mind. Good steady pulse, and no evidence of renal disease. Menstruation (metrorrhagia) regular to time of hysterectomy. Physical examination showed an enlarged uterus, nodular, and lying back against the promontory, and somewhat low in the pelvis. The os was clean, the canal four inches deep, and there was nothing peculiar about the vagina.

Operation for hysterectomy was performed May 1, 1894. The details of the operation were carried out carefully in every particular, according to my previous description. There was no appreciable shock and the patient made a complete recovery and has since been perfectly free from pelvic pain and discomfort, although she still suffers from some cystitis. Urine 1031; no albumin or sugar.

Case 3.—Fibro-cystic disease of both ovaries. Enlarged uterus. Vagino-abdominal hysterectomy, recovery. Family physician, Dr. Rich. Hogner, Boston, Mass. Mrs. N. O., married, nullipara; no miscarriages; first seen August, 1894. Age 29 years, housewife. Family history shows a sister, 2-para, about 40 years old who died in June, 1893, from sarcoma-cystica-ovariorum. Previous history: for several years she has suffered from excessive and long continued menses, occurring about every two weeks. Last May after heavy lifting she had an attack of pelvic peritonitis, with metrorrhagia, so extensive as to threaten the patient's life, complicated with slight nephritis and acute endocarditis as well as embolic pneumonia. For a year and a half, menstruation has been regular, except for two periods. Previous treatment consisted of gynecologic kinesitherapy, according to the method of Thure Brandt, and Swedish medical gymnastics. Her condition at the time of operation was excellent as far as the general health was concerned. Examination showed a tumor reaching nearly to the umbilicus and closely connected with the uterus. The fundus could not be determined. The urine was normal. The cervix was normal, uterine canal four and one-half inches, and vagina roomy.

Operation Sept. 11, 1894, was unusually long, owing to numerous adhesions. Very little shock followed; the urine of the first ten hours was smoky and albuminous. Recovery was perfect, and the patient has remained well since.

Case 4.—General interstitial fibroid uterus, submucus fibroid, ovarian fibro-cystic tumor on the right side. Vagino-abdominal hysterectomy, recovery. Family physician Dr. Mary E. Bates, Boston, Mass. Miss E. A.; single; nullipara; no miscarriages; first seen April, 1894. Age, 43 years. School teacher. Family history; mother has suffered for years with an abdominal growth. One sister and brother well. Previous history: dysmenorrhea from childhood, steadily growing more severe, and especially during the past ten years. Ten years ago it was claimed she had a misplacement of the uterus and a ring pessary was worn for several months with relief of symptoms. For several years she has had flatulent dyspepsia with headache occasionally. Five years ago she was curetted by Dr. Marcy. For several years menstruation has occurred nearly every two weeks and very profuse. A watery discharge has been noticed most of the time and required the constant wearing of a napkin for two years. She is extremely feeble and exhausted on slight exertion, although well nourished. There is pallor and discoloration of the skin. Heart, lungs and kidneys normal. Uterus considerably enlarged; cavity four and one-half inches deep, tender; os clean. Vagina somewhat close; right ovary painful to pressure; urine normal.

Preliminary treatment by curetting in May, 1894; rest in bed, tonics and sent to seashore for the summer. Came

back with increased tone and weight, but incapable of work. Operation Oct. 25, 1894. Primary union of parts but some bladder catarrh followed with occipito-cervical neuralgia. Steady improvement from the beginning and she resumed her occupation as teacher April 1, 1895.

Case 5.—Large uterine myomata. Vagina-abdominal hysterectomy. Recovery. Family physician, Dr. John E. Somers, Cambridge, Mass. Miss M. R., nullipara; no miscarriages; single. First seen December, 1894. Age 32 years; domestic. Family history: both parents living; of thirteen children one sister died from uterine tumor, and two others in confinement. Previous history of excellent health until the summer of 1893, when a large bunch, at first pulsating, but not later, was discovered in the lower abdomen. It was not tender to touch, and did not increase in size for a year. Menorrhagia was severe after the tumor appeared, requiring two dozen napkins at a period. It was painless. There was some leucorrhea but not enough to require the wearing of a napkin. Previous treatment with tonics. At the time of operation she was pale and cachectic looking with a doughey condition of the face. The heart was irregular and there was an indistinct systolic murmur. The urine has a sp. gr. 1020; no albumin, but many squamous and pavement epithelial cells with some mucus. She was well nourished and without evidence of emaciation. The uterus reaches above the umbilicus, is symmetrically enlarged with a cavity six inches deep, and a clean os. The vagina is roomy.

Operation Jan. 17, 1895. While on the table patient was at times considerably cyanosed and the pulse could not be determined. She reacted well, however, and made a rapid convalescence with primary union. After the operation the urine showed traces of albumin, and some hyalin casts. The mind gave indications of impairment but there is improvement in this particular.

Case 6.—Large uterine myomata. Vagino-abdominal hysterectomy. Recovery. Family physician, Dr. John E. Somers, Cambridge, Mass. Miss Lily B. A., nullipara; no miscarriages; single. First seen December, 1894. Age 37 years, school teacher. Habit of taking long walks. Family history negative. Previous history: well until the summer of 1891, when after a long and fatiguing walk on a very hot day menstruation occurred, a week before it was due. After this event, frequent and profuse metrorrhagia followed and continued at irregular intervals to the date of operation. In the fall of 1893 and spring of 1894, the attacks of hemorrhage were especially severe. In January, 1894, phlebitis occurred in both legs and confined her to bed and room several weeks. The tumor was first discovered in June, 1894, and in the fall of the same year a watery discharge from the uterus appeared, so profuse as to necessitate the use of a napkin constantly. Previous treatment of tonics and electricity since July, 1894 relieved, to a certain extent the exhausting hemorrhage. Her present condition in general is fairly good, pallor being the worst symptom. There is some edema of the limbs; the urine is increased in quantity, with a sp. gr. 1020; the solids are in normal amount. Heart, lungs and kidney are free from disease. The uterus is symmetrically enlarged and reaches above the umbilicus; the cervix is short and "taken up" high in the pelvis. The os is clean and the vagina long and narrow. Sound passes nearly five inches.

Operation March 7, 1895. A stem could not be inserted and after freeing the uterus from the vagina, the parts were packed with gauze and the operation finished from above in the usual way. Twenty-five minutes only was consumed in making the incision and removing the uterus, and the toilette of the peritoneum and closure of incision was finished in the same time. The patient rallied quickly from the operation and made a good recovery. This was the first case in which I had been obliged to leave the vagina open from above, and although the recovery was as complete as the others, a daily variation of 1 to 2 degrees of temperature and slight vaginal discharge showed the cavity at the vault of the vagina healed by second intention with granulation.

The Red Cross Society of Japan.—The Japanese branch of the Red Cross Society was founded in 1877. At the beginning it had only 38 members. At present it has 141,000 members and an income of $380,000, besides possessing a hospital. On Sept. 2, 1889, it was officially recognized by the International Committee.

HYSTERECTOMY FOR PUERPERAL INFECTION.

Read in the Section on Obstetrics and Diseases of Women at the Forty sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The advances which have been made in the science of bacteriology and the discovery that the same germs are responsible for wound infection and puerperal sepsis, has given a new impetus to the consideration of certain surgical procedures looking to the cure of various forms of sepsis met with during the puerperium. During the past few months the question of removal of the uterus, as a method of treatment for certain conditions arising during the course of puerperal infection, has been discussed by some of the prominent gynecologic societies of the country and much difference of opinion in regard to the advisability of this mode of procedure has been shown to exist.

In spite of the diminished mortality from puerperal sepsis, brought about by the introduction of antiseptic and aseptic measures, probably many thousands of women die annually from puerperal septicemia. The favorable results have been obtained in the large maternities, where perfect technique can be secured. Outside of these hospitals, on the other hand, there exists still a large amount of septic infection, following abortion or labor at full term. It is next to impossible to gather accurate statistics relative to the mortality from this disease, because of the inaccuracy of the death certificates. The public have learned to blame the attending physician for any death resulting from septic infection subsequent to labor, from which naturally arises the discrepancy between the actual and reported diagnosis. If to this be added the sepsis arising from accidental and induced abortions, it will be seen that no effort should be spared to perfect all methods of treatment for the relief of this condition. The present paper is offered as a slight contribution to the study of the subject.

A clear conception of the bacteriologic and pathologic changes in the birth canal is highly essential to the evolvement of correct principles of treatment. Bumm describes two forms of endometritis, putrid and septic. The germs which are active in producing septic endometritis are the streptococcus pyogenes aureus, the staphylococcus pyogenes aureus and the streptococcus erysipelatus. The septic process may be localized and the germs shut off from the underlying tissues by a granulating zone, or this zone may be absent and the pyogenic cocci be found distributed in the lymphatics leading to the peritoneum. In septic endometritis although putrefactive germs may be present, they do not predominate, hence fetid lochial discharges are apt to be absent in the more septic processes, a fact of much significance as a point of diagnosis.

In putrid endometritis there is always to be found decomposed material within the uterine cavity and a necrosis of the epithelial layer. The granulation zone is also present in this variety, and acts as a barrier to the penetration of the germs and their products into the lymph spaces of the uterus. The putrefactive focus within the uterine cavity favors the development of certain toxins, the absorption of

which into the blood gives rise to a form of systemic poisoning termed sapremia, the symptoms of which differ in many respects from those accompanying septicemia.

Generally speaking, cases of puerperal sepsis may be divided into two large classes; 1, those where by means of the lymphatics, a large number of germs have found their way into the general circulation without giving rise to localized inflammation in the broad ligaments, adnexa or peritoneum; and 2, where the septic process has resulted in areas of localized inflammation in and about the birth canal, the general circulation containing, as the case may be, many or few of the pyogenic cocci.

Considering the second class first, we meet with a variety of local manifestations. The septic inflammation may spread from the interior of the uterus to the peritoneum and a localized peritonitis result. The germs may travel by way of the uterine lymphatics or Fallopian tubes. These are the cases which offer the best results from operative interference, because the products of inflammation are walled in and shut off from the general peritoneal cavity by adhesions. This variety of inflammation results in localized collections of pus, which often assume such large proportions as to be mistaken for, and reported as, cases of general septic peritonitis cured by celiotomy and drainage.

The broad ligaments may be involved by an absorption of the septic germs by way of the pelvic lymphatics. Here we meet with true pelvic cellulitis and abscess, the evacuation of which often results in a subsidence of the puerperal symptoms and a cure. Again we may have a general purulent peritonitis resulting from absorption by way of the lymphatics. This usually proves rapidly fatal and where fully developed is probably not amenable to treatment, the system being overwhelmed by the poison absorbed from the large amount of surface involved in the septic process.

In speaking of the pathologic conditions found in septic endometritis, it was stated that in a certain class of cases the granulating zone, shutting off the necrotic endometrium and offering a barrier to the invasion of the germs into the underlying tissues might be absent. Then the pathogenic cocci are absorbed directly by the lymphatics and veins and find their way directly into the general circulation setting up a virulent septicemia. These are the cases belonging to the first division mentioned above. Localized inflammatory processes in the cellular tissue, adnexa and peritoneum are absent or only appear secondarily just before the fatal issue brought about by the general systemic poisoning. Even in those cases of septic endometritis where a granulating zone is primarily present, active absorption may take place if, through the injudicious use of the sharp curette, this protective zone is removed. To recapitulate, we may divide puerperal sepsis into two large divisions:

1. Where general infection predominates, and localized inflammatory processes appear only secondarily and are of minor importance compared with the general septic condition.

2. When the septic absorption results in the formation of localized inflammation either in the adnexa, pelvic cellular tissue or peritoneum. General infection, however, may accompany or result from these inflammatory collections.

There should be no difference of opinion in regard to the proper treatment to be instituted for the relief of the cases coming under the second division, except where absorption has resulted in general purulent peritonitis. All collections of pus in the adnexa or cellular tissue should be evacuated with the least possible delay, and the tubes and ovaries removed if necessary. It will usually be found best to reach the pelvic abscess by way of the vagina, but so much more can be learned in regard to the condition of the peritoneum and uterus by the abdominal incision, that it would seem preferable to remove the appendages by this route, when the general condition of the patient presents no contra-indications.

Surgery has scored some brilliant successes in the treatment of localized puerperal septic inflammatory deposits, as a review of the reported cases will reveal. What confronts the surgeon to-day is the treatment of the other class of cases, where absorption is taking place from the interior of the uterus by way of the lymphatics, and the resulting infection is becoming general and not local. Medical treatment for these cases is practically valueless. Can surgery prove of any avail?

The cases of general infection now under consideration are of two descriptions, as might be supposed from a study of the two varieties of septic endometritis, which have been pathologically considered:

1. We have those cases where the veins and lymphatics at the placental site are loaded with germs; and 2, where the zone is present and impedes to some extent the further penetration of the cocci. Clinically, it is extremely difficult, if not impossible, to differentiate between these two conditions, which a histologic study of the endometrium has revealed to us. The symptoms of both are pronounced and denote a general septic absorption. The lesson to be learned is that a dull and not sharp curette should be used in intra-uterine treatment, if we would preserve nature's barrier which has been thrown out in the form of a granulating zone. The treatment of these septic cases must be rigorous and thorough, if it is to prove of any avail. The source of infection must be got rid of at once or else the blood will become so loaded with the poisonous germs that any treatment will be valueless. Could we differentiate between the two conditions clinically, it would be advisable to curette and pack the uterus with gauze in the second class of cases and exchange this method for more radical procedures for those of the first class. But inasmuch as a differentiation is almost impossible, the plan of treatment just suggested should be employed in all cases.

A careful examination has already revealed the fact that the beginning septic infection is not complicated or has not given rise to localized inflammatory deposits. The main diagnostic symptoms to be relied upon are the high fever, rapid pulse, possibly chills and the history of the case. A careful curettage will remove everything from the uterine cavity which can give rise to septic absorption. If the curettage and packing with gauze causes no amelioration of the symptoms within twelve or eighteen hours, the only logical procedure that remains to us is to remove the source of infection, namely, the uterus. If this be done early enough the patient may live. In other words, provided the organ, whose lymphatics have been shown to be loaded with germs, can be removed before too many have found an entrance into

the general circulation there would seem to be no reason why a cure should not be effected. It may be urged that such a procedure is too radical and that it is useless, because the disease is general not local, hence the removal of the uterus can have no effect. It *is* a radical procedure but not more radical than the disease is fatal, if allowed to proceed unchecked. The outcome must be fatal, unless the source of infection be removed. If the absorption has progressed to a certain point, hysterectomy is a useless operation, because we are then dealing with a general and not a local disease. The plea that is made here is for the radical operation while the disease is still local. The writer is convinced that by early operation a certain number of cases may be saved. It is not right to condemn hysterectomy in these cases because it has failed when undertaken too late. Successful cases have been reported and will become more common as we become more skilled in diagnosis and more expeditious in treatment. The writer has arrived at these conclusions from a careful study of the following case, which is reported in full because of its bearing on the subject under discussion:

Sunday afternoon, Feb. 3, 1895, the writer was asked by Dr. A. J. Pressey to see in consultation Mrs. W. The attending physician gave the following history of the case: the patient was 28 years old and married. She had had two children. The doctor had attended her for a number of miscarriages. January 28 he was called to see her and found her with a temperature of 105. She had been flowing according to her statement, for four days. The next morning the temperature was 102 and the next 106. She then confessed that she had brought on a miscarriage, the method employed not being stated. She was immediately placed under an anesthetic and the uterus thoroughly curetted with a sharp curette. A putrid placenta, half the size of the hand was brought away, the uterus carefully douched with bichlorid solution and packed with gauze. The next day the latter was removed and showed itself free from any odor. The temperature ranged from 101.6 to 102.2 and the pulse was over 100. During the next three days there was but little change in the patient's condition except a gradual rise in the temperature, in spite of liberal doses of antipyretics. A number of intra-uterine bichlorid douches were administered, although there was absolutely no odor to the vaginal discharge.

At the consultation, February 3, the temperature was found to be between 104 and 105, pulse 110. There was no abdominal tenderness and no signs of peritonitis. Vaginal examination revealed a slight thickening in the right broad ligament, otherwise the examination was negative. There was no odor to the vaginal discharge. The patient's general condition was excellent and she expressed herself as feeling perfectly well and as not seeing the necessity of a consultation of physicians. It was decided to curette again the following morning if the patient's condition was not improved. This was thoroughly done at the appointed time, as the temperature was still high, and the uterus again packed with gauze. The following noon, Tuesday February 5, as the temperature was over 104 degrees and the pulse high, it was decided, as the last chance, to open the abdomen, prepared to remove the seat of the infection, even if a hysterectomy should be necessary. The entire peritoneum was found to be deeply congested. Especially so was the surface of the intestines and broad ligaments and the peritoneum over the fundus of the uterus. The appendages were found to be normal in size and position and the bunch felt in the right side of the pelvis was seen to be a true puerperal cellulitis. The question that arose in the operator's mind was, Shall the uterus which is or has been the seat of infection be removed, or shall the incision be closed and no further attempt made to save the patient? A hysterectomy was decided upon, for reasons which will be stated later on, and the uterus and appendages removed entire in a comparatively short time, if it be taken into consideration that the surroundings were unfavorable, the operating room being little better than an attic.

There was little or no shock after the operation, but it proved of no avail, for the septicemic symptoms became more and more pronounced and the death of the patient occurred two days later. An autopsy showed that general purulent peritonitis had developed subsequent to the operation.

This detailed description of the case has been necessary, in order that certain deductions might be drawn which may help us in future cases. It would seem, in all probability, that the high temperature and other symptoms which were present just prior to the first curetting were indicative of the presence of a powerful poison within the blood. In other words, we had to deal here with a sapremia and not a septicemia, the toxins being produced because of the presence of the putrid retained placenta. It is also probable that the sharp curette, while it removed the foul placenta, may have opened the uterine sinuses and veins and allowed the entrance of the pathogenic cocci themselves. At any rate, the curetting and packing with gauze did no good, if no positive harm were done. In the opinion of the writer, the second curetting was a mistake. The history of the case should have been taken into consideration and the celiotomy performed then and there. If it had been done at that time or better, just after the first curetting had failed to accomplish any good, there is every reason to believe that the removal of the uterus would have saved the patient's life. The moment should have been seized when the germs were within the uterus and but few had penetrated into the general circulation. Could such a time be chosen and the uterus, which is the source of the infection, be removed, there seems no good reason why the septicemic process might not be aborted. The mistake that is made is delaying until the system is so overcharged with the poison that the removal of the source of the infection can not avert the fatal termination.

SUMMARY.

1. Puerperal sepsis is still a common disease, although in the hospitals the mortality from this source is practically *nil*.

2. There are two forms of puerperal endometritis: (*a*), putrid; (*b*), septic.

3. In the septic form there may or may not be present a granulating zone, acting as a barrier to the further penetration of the germs.

4. Putrefactive germs may be absent, hence fetid lochia may not be present.

5. Putrid endometritis signifies necrosis of the lining membrane of the uterus and the presence of decomposed material.

6. This variety is prone to develop toxins, the absorption of which gives rise to sapremia.

7. Clinically, cases of puerperal sepsis may be separated into two large divisions: 1, where general infection predominates; 2, where localized inflammatory deposits are present, the general infection being secondary and less important.

8. The areas of septic inflammation may be in the adnexa, pelvic cellular tissue or peritoneum.

9. This class of cases present the most favorable field for operative procedures.

10. It is almost impossible to make a differential diagnosis between those cases of septic infection having a granulating zone in the uterine tissue and where this is absent.

11. These cases should be curetted with a dull instrument and packed with gauze.

12. If there is no improvement in the symptoms within twelve or eighteen hours the source of the infection, namely the uterus, should be removed.

13. Hysterectomy should not be condemned because of its failure when performed too late.

14. If this operation be done early enough it will be the means of saving a number of lives.

DISCUSSION.

Dr. A. Lapthorn Smith, of Montreal—said that when we have to deal with a case of puerperal fever which, in spite of careful curetting and irrigation continues to grow worse, an operation should be resorted to. He was among the first to open the abdomen for this condition. In such a case the infective process has invaded the walls of the uterus itself and the lymphatics that run along its side, and the only rational thing to do is to open the abdomen and remove the uterus. He is strongly in favor of the abdominal method in preference to the vaginal, as it gives us a better opportunity to completely eliminate the source of infection.

Dr. Henry P. Newman, of Chicago—commended the two papers as they were in the line of better work in this very distressing ailment, puerperal septicemia, following birth at full term, and following abortion. He expressed the opinion that by merely curetting the uterine cavity we accomplish very little. Curettage, as it frequently done, was in his opinion extremely faulty in puerperal cases. We can do comparatively little in covering the entire endometrium with an ordinary curette. It is his practice to supplement the curetting by swabbing out the uterus with a 95 per cent. solution of carbolic acid, subsequently packing the uterus with iodoform gauze.

Dr. L. H. Dunning, of Indianapolis—desired to place on record his cases of pus in the pelvis, antedating delivery and leading to the development of peritonitis. The first case was one of pyosalpinx, resulting in death three days after delivery, immediately subsequent to operation. Preceding and following the operation there was a discharge of pus from the uterus, due without doubt to suppuration in the uterine walls. The second case was one of tubo-ovarian abscess, following a miscarriage at four and a half months. After the miscarriage, evidences of septic peritonitis occurred. An operation was advised, but declined, and post-mortem examination showed that the abscess had ruptured.

Dr. J. Henry Carstens, of Detroit—said that in certain cases, where the puerperal symptoms are due to the presence of small pieces of placenta or membranes in the uterus, curetting and swabbing with strong carbolic acid are all that is necessary. He is not in favor of packing the cavity with gauze after curetting, believing that freer drainage will take place without it. There are other cases of puerperal septicemia, coming on late, that is, about the ninth or tenth day after delivery, which are the result of some peculiar kind of infection and often end fatally.

Dr. W. H. Humiston, of Cleveland, Ohio—referred to two cases of puerperal septicemia that had come under his observation during the past year, in both of which he advised hysterectomy, and in both cases the operation was refused. One of the patients died after a prolonged illness, while the other recovered.

Dr. John Milton Duff, of Pittsburg—believes that if the pulse still keeps rapid, and only a slight decrease in temperature follows curettage and irrigation of the uterine cavity, the patient, if let alone, will die. Under such circumstances hysterectomy is necessary.

Dr. L. S. McMurtry, of Louisville—said he thought it would be a great misfortune to have the statement go out from this meeting that in every case of puerperal fever which does not yield to ordinary treatment a hysterectomy is demanded. Puerperal fever is very common, and the majority of the cases recover under an expectant plan of treatment. In his opinion, hysterectomy should only be resorted to on the same principles that it is done in other conditions. When there are some demonstrable lesions in the pelvis, then it is proper to resort to an operation.

Dr. M. Price, of Philadelphia—said he never employs the curette, the use of which he regards as very injurious in any form of puerperal fever. Tamponing the uterus with gauze should also be avoided. As regards the performance of hysterectomy in puerperal septicemia, it should be considered nothing less than a criminal procedure. The woman is already septic, and to create an additional raw surface can only add to the danger. If this operation is done in such a case and recovery follows, it is the result of a happy accident and not the surgeon's skill.

Dr. J. M. Baldy, of Philadelphia—said there was not an authentic case on record in the literature of medicine, of general suppurative puerperal peritonitis that had been cured by operation; no surgeon had ever gone on record as strongly as the Prices, of Philadelphia, that surgery should be done where there is pus, and when one of these gentlemen makes the statement that he has had two patients in bed for two months with pus and tells us not to operate in such cases, there is something wrong. They say, operate when you put your fingers on disease; in other words, remove the tubes and ovaries, but if there is disease or pus in the uterus ignore it. He would ask, Of what service is it to remove the tubes and ovaries only, when the pus is in the uterus? If the patient be left alone, she will probably come again into the hands of the operator for a secondary operation. It would be much wiser to perform the primary operation, and save the patient months of a dangerous condition.

Dr. W. E. B. Davis, of Birmingham, Ala.—believes that surgeons sometimes make a mistake in peritonitis, in that they do not consider the germs which produce the disease. While the germ of gonorrhea was the most prolific cause, there were other germs than the gonococcus which sometimes entered into the production of the disease. He agrees with the essayist that cases of general suppurative peritonitis are not cured by surgery. He fails to see how cases of peritonitis, which have gone through the different stages with pus formation, can get well by surgical interference. By this time the system is thoroughly infected, and it is impossible for surgery to relieve the condition; in other words, the patient is septic, and even if the peritonitis was cured by operation the patient would die. He was aware that some surgeons had made the statement that they had removed pints and even quarts of pus from the peritoneal cavity and cured the patients, but he did not believe it.

Dr. J. C. DaCosta, of Philadelphia—had never done hysterectomy for puerperal septicemia, and almost every case he had known to be operated upon had died. If we take a woman with puerperal sepsis, with a temperature of 104.5 degrees, thoroughly curette the uterine cavity, remove the *débris*, etc., and wash it out; we will find the temperature will come down to 102 degrees; and a second curettage, followed by thorough packing with iodoform gauze so as to distend the uterus and drain it, will cure some of the cases if they are not too far advanced.

Dr. Charles P. Noble, of Philadelphia—said Dr. Carstens had made the statement that if the uterus is curetted early and swabbed over with carbolic acid the patient would recover. The position he took in his paper was that hysterectomy should only be performed when these measures failed. He went one step further and recommended that hysterectomy be done in cases in which the general condition of the patient was such that she was in imminent danger.

Dr. Reuben Peterson, of Grand Rapids, said the class of cases he had mentioned and dealt with in the paper were among the most embarrassing and perplexing cases with which the gynecologist had to deal, largely because our studies had not led us to definite conclusions. Yet, it seemed to him, that the indications for surgical interference were clear. It is unreasonable for us to wait until we get palpable disease in the pelvis before operating. In the cases touched upon, nothing could be found of a definite character on either side of the uterus; the appendages were normal; and bacteriologic examination is apt to show that the lochia are not even involved. There is no tenderness; apparently no

symptoms of peritonitis—indeed, nothing except we know that the woman is lying at the point of death. He could not agree with Dr. Carstens that by using the curette early in cases where there was pus collection and swabbing out the uterus with carbolic acid they would get well. He believed that ninety-nine of every hundred would die.

DIAGNOSIS OF URETERAL AND RENAL DISEASES IN WOMEN.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

BY HOWARD A. KELLY, M.D.

PROFESSOR OF GYNECOLOGY AND OBSTETRICS IN THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

It is my purpose in this paper to consider in outline the new methods of ureteral examination in women which I have developed recently. I shall therefore pass over those important diagnostic points which are already well recognized, such as clinical history, urinalysis, and ureteral and renal palpation.

My method lays stress upon three steps in the investigation, namely:

1. Inspection.
2. Catheterization of the ureter.
3. Catheterization of the pelvis of the kidney.

It will be observed that each of these procedures gives direct and positive information in marked contrast to the inferential methods of diagnosis of ureteral affections hitherto deemed sufficient.

I.—INSPECTION.

Inspection is limited to the orifices of the ureters and notes: 1, the appearance of the orifice and its immediate surroundings; 2, the character of the fluid discharged from the orifice; and 3, the character of the flow, whether absent, intermittent, or continuous.

Inspection is accomplished by placing the patient in the knee-breast position, or elevating the pelvis, and introducing a cylindrical speculum, 10 millimeters in diameter. The bladder at once fills with air, and all parts of its lining mucosa are accessible upon directing into it the rays of a good light held over the sacrum, by means of a head mirror. The ureteral openings are found at the base of the bladder, about 2 cm. from the internal ureteral orifice, and at an angle of twenty-five to thirty degrees to the right or left.

1. The appearance of the orifice in inflammatory disease of the ureter and kidney is often characteristic; being deeply injected, or pouting, mammillated, or swollen and edematous. A small area of ulceration may sometimes be seen in the bladder at the orifice. In tubercular cases, when the disease descends from the kidney down to the bladder, the first infection is apt to be distributed about the ureteral orifice over a triangular area with its apex at the ureter. The explanation is obvious; this is the area which comes first into contact with the urine from the infected side in its concentrated form, before dilution with the opposite urine and before distribution over the wide area of the bladder.

2. The character of the fluid as it is seen issuing from the ureteral orifice may be sufficient in itself to settle the diagnosis and determine the treatment, but before reaching a decision it is necessary to examine both ureteral orifices, watching them for a few minutes, until there is an escape of fluid. If no discharge takes place from one side, it may sometimes be started, when there is a renal tumor, by bimanual compression of the tumor in the flanks.

I recall in this connection, cases of hematuria in which bloody urine was seen flowing out from one side while the other discharged clear urine. In one case there was a layer of blood over the floor of the bladder, and the first and natural suggestion was that the vesical mucosa was the source of the hemorrhage. But upon cleansing it with a little pledget of cotton, the mucosa was discovered to be normal. Both ureteral orifices were surrounded with blood, but on one side the flow of normal urine kept clear a little path of uncovered mucosa, immediately in front of the opening, showing that that side was sound.

In a case brought to me by Dr. H. B. Marriott of Battleboro, North Carolina, we saw thick pure pus

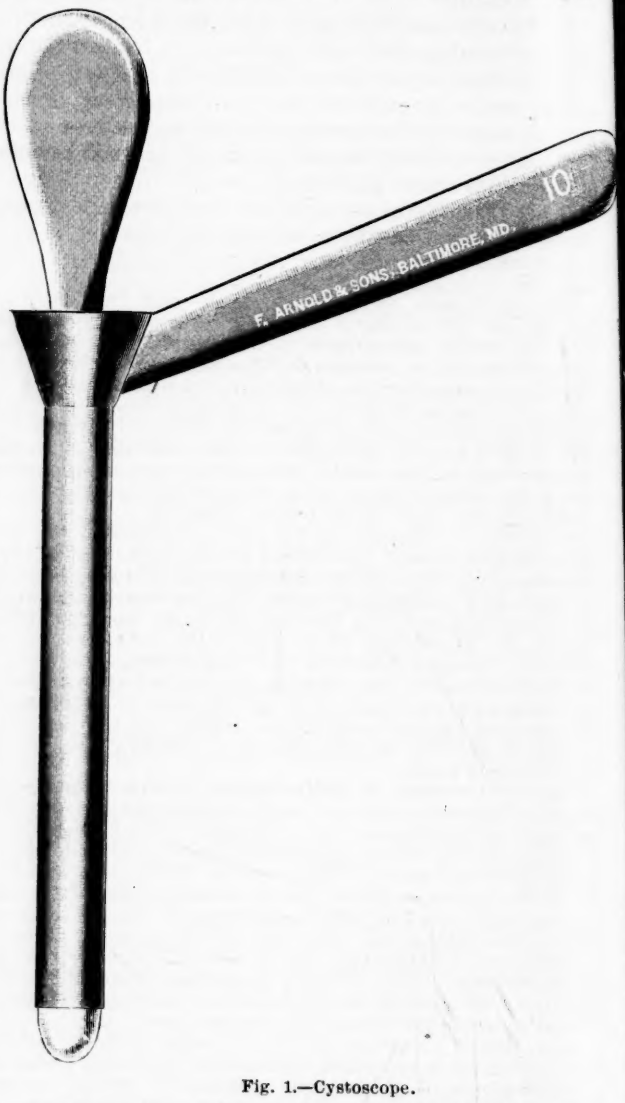


Fig. 1.—Cystoscope.

issuing from the right ureter, and limpid urine from the left. I operated and removed a large number of stones from the right kidney. I have repeated this experience many times.

3. Normally, with the patient in the knee-breast position, the urine flows in clear jets, spurting out and often down the speculum. If there is a prolonged delay in the discharge from one side, there must be some stoppage there. When the discharge is purulent, it simply oozes from the opening and may continue to run out for a considerable time without intermission.

I would call attention to the important fact that,

with the patient in the knee-breast position, the fluid escaping from the ureters can be collected for microscopic and chemic examination,as it trickles down the speculum, without catheterizing either ureter.

II.—CATHETERIZATION OF THE URETERS.

Catheterization of the ureter is but a step beyond inspection, and by my method the ureter can be catheterized almost as easily as it can be seen. I must insist upon careful attention to aseptic details throughout this procedure. These are in brief:

1. A clean external urethral orifice.
2. The introduction of an aseptic speculum.
3. A ureteral orifice cleansed with a pledget of cotton saturated with a boric acid solution.
4. A sterile ureteral catheter not contaminated by handling.
5. Avoidance of contamination of the catheter during introduction.
6. Placing the sterile end of the catheter in a sterile test tube to collect urine as it flows from the ureter without contamination.

In order to catheterize the ureters the patient kneels upon a table or a bed with a board under the blanket to keep the surface flat. Then with the speculum introduced into the bladder the right or left ureteral orifice is found and kept within the lumen of the speculum, while the metal catheter is taken up by its outer end and slowly passed in. The end of the catheter is pushed on up to the ureteral orifice under constant observation, until it touches it; it is then engaged and gently pushed in toward the pelvic wall. Any resistance felt must not be overcome by force, but by withdrawing the catheter slightly and pushing it in a little different direction. It will generally be found, after the catheter has advanced 2 or 3 centimeters, that it is necessary to draw the speculum out a little, and then carry the point of the catheter more directly outward toward the pelvic wall.

The speculum is then wholly withdrawn and the catheter left in as long as desired. If the patient is turned over on her back, this must be done with extreme care, to avoid striking the end of the catheter and wounding the ureter.

To secure uncontaminated urine for bacteriologic investigation, the outer end of the sterilized catheter should be protected by a sterilized piece of rubber tubing before introduction. This can be taken off after the catheter is in place, and the urine which flows over the end can be collected without admixture with extraneous elements. I sometimes sterilize the end which has been touched during the introduction, by holding an alcohol flame under it until the escaping drop of urine boils on it.

Although the simple metal catheter is easier to handle in the introduction, I prefer, as less dangerous and therefore more to be recommended for general use, flexible silk ureteral catheters which I have had made, 30 cm. long and 1½ to 2 mm. in diameter (see Fig. 5). These have a large eye below a conical point which is easily pushed up 15 or 20 cm. beyond the ureteral orifice. If kept in a cool place the catheter is stiff enough to push up the speculum and into the ureter without the aid of a stylet, with which a soft catheter may also be easily introduced.

Short metal catheters 6 cm. (2½ in.) long, with fine rubber tubing on the end, introduced on a stylet, is also often convenient when both ureters are to be drained.

To put a catheter into both ureters, one may be catheterized first and the speculum taken out entirely and reintroduced alongside the catheter, when the opposite ureter may be exposed and catheterized in the same way. The patient may then be turned on her back without fear of the catheter coming out, and the urine drained from right and left ureters into separate receptacles. It is important to note the time of the flow, so as to establish a relation between the kidneys which is quantitative as well as qualitative. To collect uncontaminated urine from these and the renal catheters, to be described, a piece of sterile fine rubber tubing is slipped over the end to protect it from the handling during the introduction into the ureter. Then when the patient is in the position in which she will remain during the flow, the rubber sleeve is drawn off and the end of the catheter placed in a sterile tube plugged with cotton. I have found a simple wooden block with a hole bored in it, as shown in diagram, Fig. 3, the easiest way to keep the tube in place. A good way of making the connection between the tube and the catheter is by a piece of fine glass tubing, twisted to reduce the chances of atmospheric infection. The rubber sleeve is then simply drawn over this instead of being pulled off.

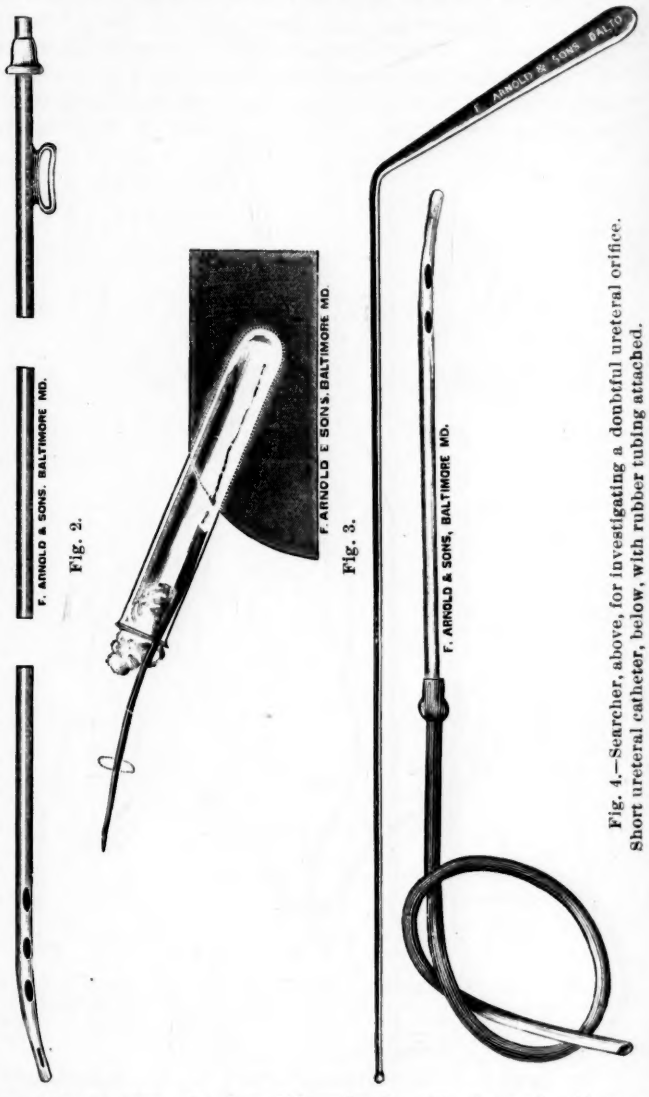


Fig. 2. Fig. 3.

Fig. 4.—Searcher, above, for investigating a doubtful ureteral orifice. Short ureteral catheter, below, with rubber tubing attached.

I would ask those who follow me in this work to adopt my enumeration of catheters and specula, by

their diameters in millimeters, because this gives at once a better idea of the size used.

Short metal catheters are also useful in draining both ureters. They are only 5 cm. long, and are pushed in with a stylet up to the very end, so that the catheter lies wholly in the ureter and bladder. The urine is carried out by a piece of fine rubber tubing on the end of the catheter.

CATHETERIZATION OF THE PELVIS OF THE KIDNEY.

My renal catheters are 50 cm. (20 inches) long, and 1½ and 2 mm. in diameter. In special cases, I use still larger sizes. They are introduced in the same way as the ureteral catheters, but are pushed up until the end impinges on the upper part of the pelvis of the kidney. Their special field of usefulness is in demonstrating the condition of the pelvis of the kidney, whether infected or not, and whether there is or is not an obstruction at the upper end of the ureter.

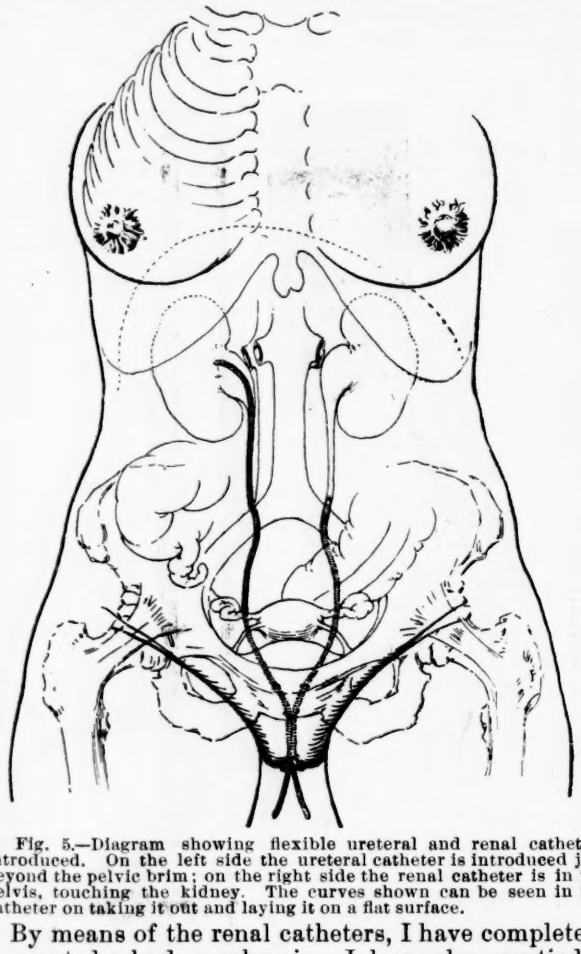


Fig. 5.—Diagram showing flexible ureteral and renal catheters introduced. On the left side the ureteral catheter is introduced just beyond the pelvic brim; on the right side the renal catheter is in the pelvis, touching the kidney. The curves shown can be seen in the catheter on taking it out and laying it on a flat surface.

By means of the renal catheters, I have completely evacuated a hydronephrosis. I have also emptied a renal pelvis full of pus, and by forcing fluid back into the kidney have washed out the pelvis repeatedly, and cured a pyelitis.

After using these soft catheters, they are washed out well with warm water, and then with a 1 to 1000 solution of mercuric bichlorid, and carefully dried and put away in glass tubes about 8 mm. in diameter and enough longer than the catheter to plug the ends with cotton.

During the introduction the glass tube is presented over the left shoulder for the right ureter, and the right shoulder for the left, with the end of the catheter projecting a little out of the tube. This should be dipped in boro-glycerid to facilitate introduction. In order not to infect it with the fingers during the introduction, I wear sterilized rubber cots on thumb and first finger, put on just as I am ready to grasp the end of the catheter and draw it out of the tube push it in, up into the ureter. The glass tube is held still while the catheter is being withdrawn.

REPORTS ON TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

(*Concluded from page 241.*)

BY J. E. WOODBRIDGE, M.D.,
YOUNGSTOWN, OHIO.

I quote this letter from Dr. Balmer of Pennsylvania: "I have treated a number of cases of typhoid fever this summer, by your method, with remarkable success and will endeavor to copy the temperature charts and send them to you soon. I presented these cases and the method of treatment before our (the Jefferson County (Pa.) Medical Society, at the last meeting and I had introduced it previously orally in the society and to individual members. Dr. S. M. Free of DuBois, Pa., one of our members, is very enthusiastic, also Dr. J. J. Brewer of Clarington, Pa., who treated a number of patients by the method, at my suggestion."

I very soon received a letter from Dr. S. M. Free of DuBois, dated December 26: "I have used your plan of treatment in a few cases of typhoid fever. It is the best I have ever employed. I have tracings and fairly complete notes of my cases, and am having my assistant make copies which I shall take pleasure in sending you as soon as complete. I trust that they may be of some service to you. I am under great obligations to you for your kindness to me. I am thinking of preparing a paper for presentation to our West Branch Medical Society on your plan of treatment, and will exhibit my charts and notes. Do you object to such a procedure? I feel sure that the more we can induce to use the treatment, the less will be the mortality in typhoid fever."

A quotation from another letter from Dr. H. K. Meyers of Indiana, dated Jan. 6, 1895, is as follows: "I will say here that I have carefully tried your mode of treatment in three well-marked cases of typhoid fever in the past few months, and was well pleased with it.

"Case No. 1, girl aged 14; very poor; surroundings bad; parents as ignorant as they were poor, yet willing to do as I directed. Temperature was from 104 to 105.5; bowels tympanitic; very tender; rose spots; tongue literally dried up, red edges. During the first three days the nose bled almost constantly. I tried to carry out your treatment to the letter, and I think I succeeded as near as any one can carry out another's ideas. The temperature was normal on the eleventh day and she made an excellent recovery. I should have stated that she had been sick a week before I was called. The other two cases were treated in the same manner and made as good recoveries. While my success in treating typhoid fever has been fair in the past, the fever was always protracted and tedious. I think your treatment is correct in principle and bound to succeed."

Dr. W. N. Sherman, of Merced, Cal., wrote me in August, 1894, asking for more definite rules for the management of typhoid fever than I had given in my papers. These directions were sent on September

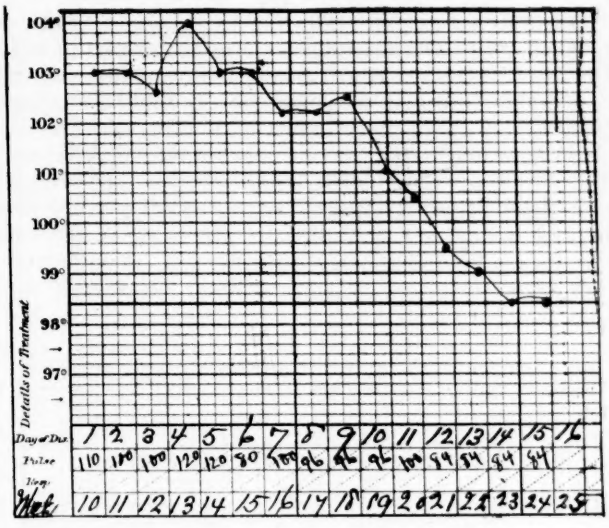
13, and on the 29th he wrote me a letter from which I extract the following: "I have given your remedies in a modified form, in two cases, resulting in a normal temperature in both cases on the eighth day. I am highly pleased thus far."

Other letters followed, reporting cases successfully treated; the last one on Feb. 6, 1895, in which he says: "I am greatly pleased to inform you that I succeeded in inducing my patient to take your remedy and this third relapse is yielding to the treatment *promptly*. As the bowels were somewhat constipated I first gave 5 grains of calomel; followed by mineral waters and sul. magnesia. These failed to establish catharsis and I gave 1 oz. of castor oil with turpentine. I started with your combination No. 1 and kept it up all the time and this morning, the sixth day, the temperature touched 98.8 degrees. Has been able to eat all of the time and is cheerful and comfortable—a very material difference from the other attacks."

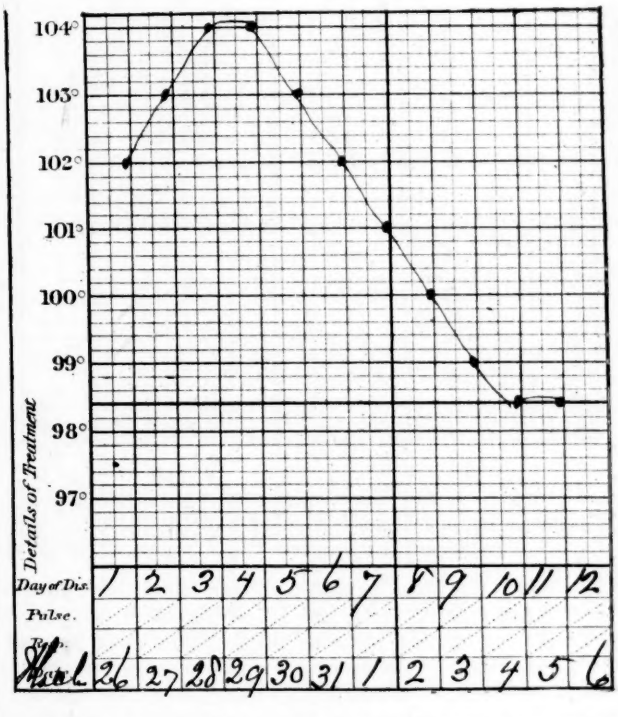
In another letter he says: "You are at liberty at any time to use my name as one who has proved and practiced your treatment and believes it to be superior to all others."

Dr. G. Law of Colorado, published a paper in the Denver *Medical Times* of December, 1894, from which I take the following:

"Dr. John Eliot Woodbridge of Youngstown, Ohio, read a paper on typhoid fever, in the Section on Practice of Medicine at the forty-fifth annual meeting of the AMERICAN MEDICAL ASSOCIATION, in San Francisco, June 5–8, 1894. I was present and heard the paper" . . . . "on looking over the action of the drugs named by Dr. Woodbridge, I came to the conclusion that the carb. of guaiacol was the central and efficient agent, if there were any efficiency in the prescriptions. . . . Hence I framed a formula for myself. . . . From July 25 up to to-day, November 23, I have treated thirty-five cases of typhoid fever, without losing a single patient. I have not had a case in which the fever lasted beyond twenty days, and have had a number of cases where complete subsidence of fever had ensued at the end of fifteen days. Cases that started with a temperature of 104 F. in the afternoon, after about four days of this treatment showed usually an afternoon temperature of 102 F. and a morning temperature of 100 to 101 F., with some sweating, which usually occurred about midnight. No one of the thirty-five cases ever had a dry tongue at any time; not one of my cases ever manifested the slightest delirium. It was not necessary to give any of these patients anything for the purpose of securing sleep or rest. Not a single relapse occurred in the entire number treated. The guaiacol compound was continued for one week after the total subsidence of the fever, but given every three, and then four and, finally every six hours. In none of the thirty-five cases was there noticeable metiorism or the slightest hemorrhage from the bowels. During the last twenty-four years I have seen and treated from twenty to fifty cases of typhoid fever each year. I never before treated thirty-five consecutive cases without losing a patient, and never before treated that number of consecutive cases without a relapse. Typhoid fever during the present year (1894) in our town has manifested about the usual characteristics, with about the usual mortality, in the hands of practitioners other than myself. I saw several fatal cases in consultation with other doctors, but I did not regard them as being suitable cases for the "Woodbridge method" as they were almost if not quite, *in articulo mortis*. I am not sanguine of the value of this treatment if instituted late in the course of the disease after the nerve centers have become profoundly poisoned by the fever toxin. I have made no secret of what I was doing with reference to my



Dr. McGarvey's Case No. 7.—Archie R.; age 6 years. Date of admission, March 10, 1895. This patient never took his bed.

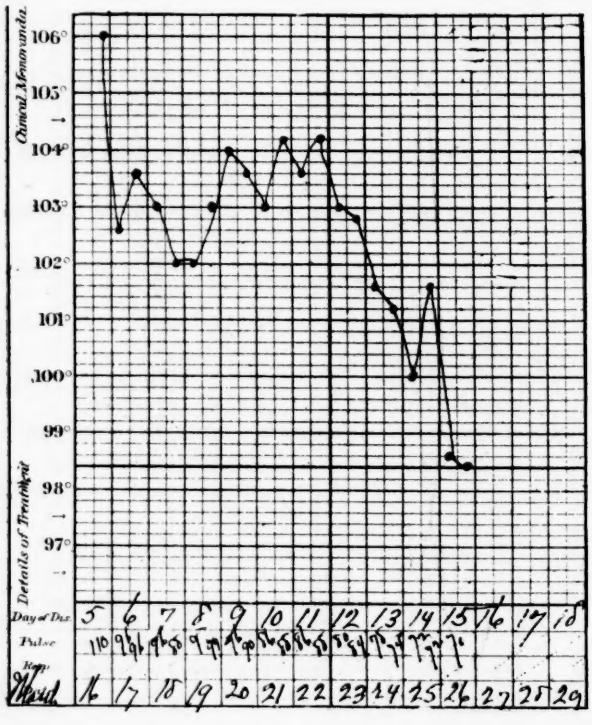


Dr. McGarvey's Case No. 8.—John J.; age 30 years; African; occupation, cook; residence, Lorain, Ohio. Date of admission, March 26, 1895. This was a cook at the hotel, a large corpulent negro; but not one bad symptom. Result: recovery.

work, to my colleagues in the city. However, only Dr. R. F. Graham seemed to attach any importance to it. He has been giving the matter some attention, and I thank him for his courtesy and will leave him free to speak for himself at his own elected time. I am aware that the bright and brilliant lights of the profession have scouted the idea of there being any efficiency in

the plan of intestinal antisepsis, and I will admit that it has not hitherto happened to be markedly successful. But let me ask, is it not in line with the present trend of so-called rational, not to say scientific medicine? In conclusion, I am inclined to infer, that either I have had a remarkable and continuous succession of mild cases, or the treatment on the lines of intestinal antisepsis that I have steadily pursued during the time indicated has been remarkably efficacious."

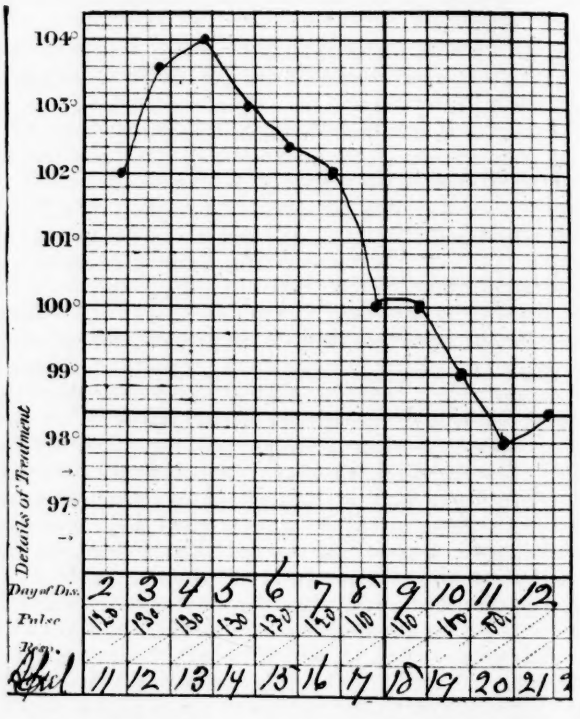
During the recent epidemic of typhoid fever at Lorain, Ohio, I was called there in consultation with Dr. J. F. McGarvey who I found was treating the disease by my method, so scientifically and so successfully that I knew that time would give the "Woodbridge method" at least one more warm advocate on the shores of Lake Erie. The evidence convinced him more promptly than I expected, and every few days he sends me a clinical chart of a patient in whose case he has aborted the disease. Your attention is called to his charts, marked "Dr. McGarvey, Case Nos. ——."



Dr. Yost's Case.—William McC.; residence, Hazleton. Date of admission, March 16, 1895. Commenced "Dr. Woodbridge's Abortive Treatment" Sunday evening—the first day the patient thought the services of a physician necessary—he had been complaining for five days before. On the tenth day he was covered with rose-spots, and about the house.

Dr. J. O. Yost, of Hazleton, Ohio, in whose family Dr. Bennet treated with me three cases of typhoid fever last autumn (See charts of Cases Nos. 92 and 96; of the third case no chart was kept) has contributed a chart of a remarkable case, in which he reduced the temperature of 106 degrees, to normal in ten days; when he reports the patient around the house, covered with rose spots. (See Case marked "Dr. Yost No. —, William McC.)

Dr. W. B. Shields of Arkansas, under the date of Oct. 2, 1894, says: "I have been for some time past, keenly interested in articles from your pen, which have appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in regard to the treatment of typhoid fever. That you have struck the correct treatment I am farther convinced, not only by your own brilliant success, but by a very remarkable run in four cases which I treated in September; following your directions as nearly as possible. No one with intelligence, it would seem to me, would question the treatment after having tried it, especially with such testimonials as you have presented from those who can not possibly be interested in your success. . . . I think as you say, that possibly your treatment could and may be improved upon in the future, but not materially changed; and it will have to be carried out on the same lines. . . . I was an interne in the Memphis City Hospital nearly two years and had good opportunities of treating typhoid fever with ammonia salycil., but although it seemingly modified the disease, I have no recollection of one case being cut short. I have been in private practice for five years and can not say that I have seen any better results than in hospital practice, my cases all running from three to five weeks. These four cases I am just through with; in two of them with morning temperature of 102 degrees, even-

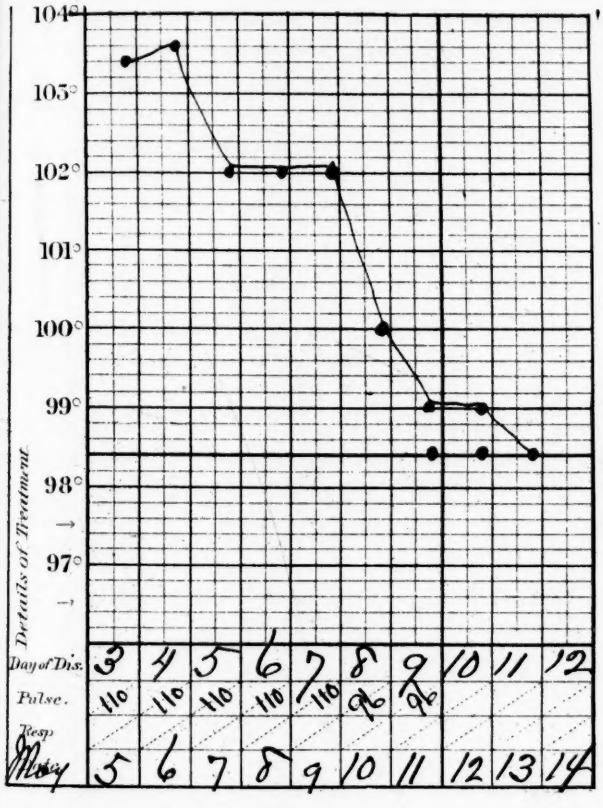


Dr. Cunningham's Case, No. 6.—Mary R., age 12 years. Date of admission, April 11, 1895.

ing temperature 104 and 105 degrees several times in the first week; were free from fever at the end of the thirteenth day of treatment and fifteenth day of disease. One other case with evening temperature of 103.5 and 104 degrees several times, was free of fever on the fifteenth day of treatment and seventeenth day of disease. The last case had evening temperature of 104 and 105 several times, was free on the seventeenth day of treatment and twentieth day of disease. This last case had such a bad attack as to suffer from incontinence of feces for several days. All of these cases felt strong at the end of the fever, and could walk around. With my limited experience in this treatment, I have to allow patients no solid food. I have used no coal-tar derivatives whatever, but had my patients sponged off once or twice in the evening on days when the fever was high. As you said, after

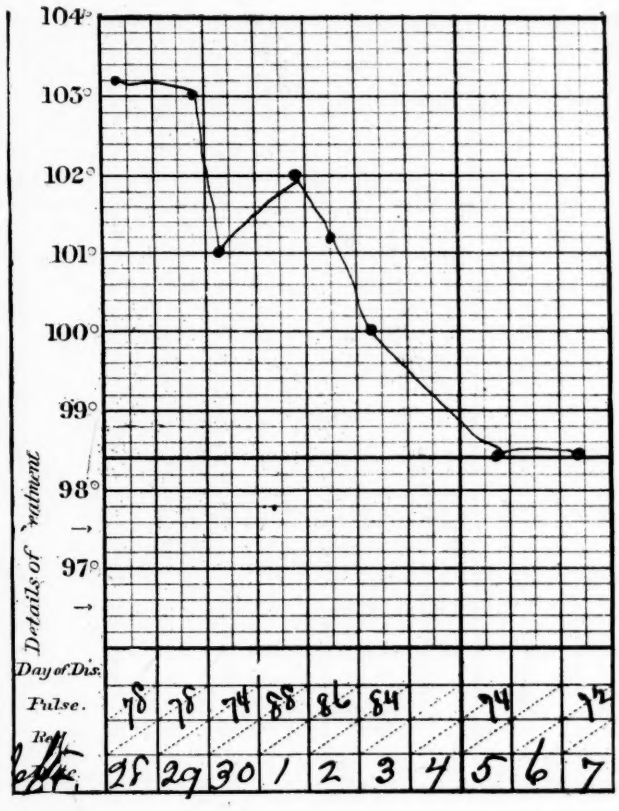
two or three days of treatment their fever could be and was controlled by the antiseptics administered. I feel that with further experience in this line I can have as good results as you have. . . . These few cases which I present, . . . few in number, but brilliant in results, convince me that you have struck the keynote, and while begging your pardon for monopolizing your valuable time, I must return thanks for the great benefit I have seen result from your teachings."

Dr. C. I. Burt, of Iowa, wrote me on December 10 saying: "We are having an unusual epidemic of typhoid fever in our locality. I have at present some thirty-eight cases. . . . Your antiseptic treatment was favorably called to my attention to-day by Dr. Wright, of Carroll, Iowa, and he requested that I write you for reprints of your late articles on typhoid fever. . . . Our source of contagion is such that



Dr. Cunningham's Case, No. 7.—Zonie G., age 3 years. Date of admission, May 5, 1895.

the physicians of this town will yet have to contend with some hundred more cases." Very soon afterward I received another letter (unfortunately mislaid) in which the Doctor complained of his inability to secure the results I had promised, notwithstanding the fact that I had written him a long letter, giving him the fullest possible details of my method of procedure, but on Jan. 22, 1895, I received another letter from him from which I make the following extracts: "I do not seem to get quite the promised results from the tablets, in the nature of producing effect, as stated in a previous letter; but I am now having better success and push them to their limit. However, I have at all times followed very closely your directions, and must state that the effects have been wonderful. In no instance have I failed in relieving my patient within three weeks and often in two. In that time, understand, some of them were sitting up, others moving about, and in a manner attending to their usual business. Many cases I began upon when the fever reached the 103 and 104 point, but they had no serious intestinal lesion. However, when I discover the matter has passed to an intestinal infection, I yet obtain splendid results. Now this point is one to which I wish to call your attention. Leaving out the abortive effect of your treatment, what are your results after the case has progressed even to hemorrhage? I find, by pushing the treatment then, as persistently as at other times, that I obtain pleasant results, at least, a thorough intestinal disinfection and, in fact, a better general tone. . . . Without doubt, Doctor, any one who uses your treatment as effectually as prescribed by your directions, will have none but the most happy results for the outcome. I have had several nurses from Omaha, and recently



Dr. J. F. Reed's Case, No. 2.—John W., age 28 years; residence, Massillon, Ohio. Date of admission, Sept. 28, 1895. Temperature remained normal after October 7. Temperature stood at 103.20 after taking 120 grs. sulph. quinin. Treatment: "Woodbridge's." Had most typical symptoms of any patient I have had; nose bleed, tympanitis, etc.

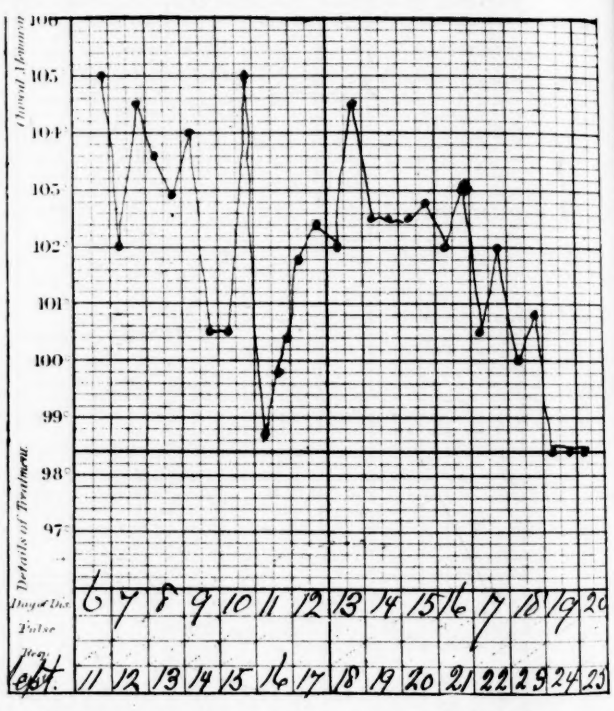
one from the Royal Infirmary, Dundee, Scotland who is in this country for her health, (they are all noted typhoid fever nurses) and let me tell you, they were absolutely paralyzed that a country doctor could produce such effects as they had never seen in Omaha or any western city. They think they will go home now and treat typhoid fever on their own accord. They say the only objection they have to this treatment is that it cuts off their time in nursing. . . . In every instance I prescribe a full bottle, without erasing formula or other attached notices. My nurses fully understand where the credit is due."

A letter from Dr. Burt written on March 21, says: "I am still using your treatment and now obtain all the results that you claim. I have a patient, one

case re-infected four times within eighteen weeks, under my care for the last five weeks and strictly under your treatment. I have avoided any high jumps of fever from 104 to 106, as had previously been the case. My patient is now convalescent, but if I stop the treatment two days I note a rise of temperature often from 103 to 104. I am not experimenting farther on this case but am rigidly keeping to the "Woodbridge treatment" and the happiest results follow. I note that you are to defend yourself, ... it does not seem to me that one ought to produce a defense in the line of argument; if any of the gentlemen will permit themselves to follow out your instructions and use your treatment, there would be no need of argument; they would all coincide with your views. It is just as positive that typhoid fever can be aborted by your method as it is that it can not be by any other treatment, to my knowledge. I have had some sixty cases this winter, and there has been no mistake in diagnosis, as our eminent local authorities have assisted me from time to time. I note that some physicians criticize the fact that they can in no instance find the "typhoid fever curve" in your records; were they to do this, after using the treatment a few days the treatment then would be useless; the treatment is to prevent this curve. It does so most satisfactorily. Most of my cases have been among the poorer classes and scarcely any attention was given, other than the medicine. I have lost one case, but that was not under the "Woodbridge method." It may, no doubt, seem an exaggeration, as to the number of cases I have had and the happy results, but every fact can be verified. I have not kept a presentable account of cases in children, but my best and quickest results seem to be with them. In ten or fifteen days they were not only convalescent but quite recovered. I consider it would be an honor to render you any service in my power, and from the above statements if matters can be condensed or rearranged in any manner that would be useful to you, kindly command me, and I will respond to the best of my ability at once."

Dr. Moore, of Iowa, in a letter dated Dec. 17, 1894, says: "I am very much pleased with your manner of going at the dread disease and I am much indebted to you for the treatment. I have treated thirty cases of typhoid fever during the last three months, without a death. . . . Early in the autumn I had five patients in one family and all recovered in from eight to fifteen days. The correctness of the diagnosis was questioned; they were thought not to be sick enough for the disease to be typhoid fever. George V., living opposite, was taken sick, so I thought I would put him on the old "expectant method" of treatment, and as you will notice by looking at the chart of Case No. 3, his temperature was not high and he seemed to be getting along fairly well, but about the thirteenth day he had a hemorrhage of the bowels and then I gave him your medicine, but it was too late. I merely send you the chart and relate this instance to show how skeptical a community is, and how laymen and physicians, too, stick to an old custom. I will never be caught so again."

At the last meeting of the Mississippi Valley Medical Association, I had read my paper on typhoid fever and during its discussion, which occupied three hours, my theories had been assailed in a most vindictive manner. Learned professors, and the editors of medical journals had vied with each other in making ungentle speeches. He who declared most positively in his harangue the time-honored aphorism: "Typhoid fever must run its course of four, five, six, or ten weeks or longer," was most loudly and emphatically cheered. Of all of the more than three hundred members in attendance, not one voice was raised in behalf of the principle I had so earnestly promulgated, or to give the slightest countenance to the treatment which will ultimately save an hundred thousand lives annually in the United States alone. No man in all that assemblage dared or cared to say that "typhoid fever can be aborted," and to the end of the discussion I remained the single and lone defender of this great and fundamental truth that means so much to the human race. After the session adjourned, I was introduced to Dr. Dalton of St. Louis, with whom I had already had some correspondence and who had written me (after having tested my method of applying antiseptic medicine to the treatment of typhoid fever), that he had been six



Dr. Moore's Case, No. 1.—Ethel D., age 6 years. Date of admission, Sept. 11, 1895. This was a case with very severe symptoms of typhoid fever. Child was taken sick away from home. She was treated by Dr. B. by the old method for five or six days. She has since had very much better health than before her illness. Although the temperature was so high, she was never "out of her head." When I first saw her, rose-spots were abundant, and great tympanitis and tenderness in right iliac region.

years at the head of the great St. Louis City Hospital, through which 10,000 patients pass annually, and he regretted that he did not then know of the "Woodbridge method." And Dr. Dalton healed all the wounds which that three hours' debate had given me, when he said: "I am very sorry that I was not at hand when your paper was under discussion; I would have waited until those disputants had finished and would then have said: 'Gentlemen, I would like to inquire how many of you have used Dr. Woodbridge's treatment of typhoid fever?' and when they admitted that not one of them had (as they would have to do), I would have said: 'That is about as I expected; you have been endeavoring to discuss a paper that you do not understand, and a treatment that you have never tried. I have investigated the matter and know that

the treatment will abort typhoid fever.'" Dr. Dalton has in various letters to me indicated his entire satisfaction with my therapeutic procedures and has reported so many cases in which he has applied them, as to give assurance that the abortive treatment of typhoid fever in St. Louis is in a master's hands. Quotations from his last letter, written April 25, are as follows: "When I first tried your treatment for typhoid fever I was a 'doubting Thomas,' but luckily the excellent result in the first case caused me to try it in a number of other cases, and I have not the slightest hesitation in saying that the treatment undoubtedly aborts the disease. Two months since I purposely allowed a typical case to run the usual course for eight days, using the old treatment. The temperature followed the general course, being a degree or two higher each evening. On the eighth day, I put the young man (18 years of age) on prescription No. 1, giving the powders every fifteen minutes for the first twenty-four hours, and every half-hour for the next twenty-four hours. On the third day they were administered every hour and the fourth day every two hours; after that every four or five hours for a week. When I began the medicine, the temperature was 103.5. On the evening of the second day it fell to 101, and in two days more it was entirely gone, never to reappear. The bowels moved freely, six or eight times daily for several days. Ptyalism did not appear. I used no other treatment after beginning the powders. Put me down as a firm believer in the treatment; an enthusiast, in fact. Let the doubters try the treatment and be convinced."

The original letters and reports from which these extracts are taken, and more than a thousand others on the same subject; as well as the original charts (of which you have been inspecting copies, many of them containing the verification and signature of the physician who attended the patient or who watched the results of the treatment) are over at my hotel, and I shall be pleased to have you inspect them. They contain much valuable information and would well repay a careful examination. I should like to have presented more of this unimpeachable testimony, but the line has to be drawn somewhere, and these documents, with those that I have already transcribed for presentation before the Ohio State Medical Society should be amply sufficient to accomplish their purpose, especially since through the courtesy of Dr. Cunningham I have been able to present the anatomic specimens showing the ulcerated Peyer's glands, the tumefied mesenteric glands, and the intussusception which caused the death; and with them the clinical chart, kept at the bedside, in which the thermic line as it approached normal, indicates that the disease was aborted and the patient practically cured of his typhoid fever on the seventh day of treatment. (See chart marked Dr. Cunningham, No. 3.)[1] And if it be admitted that even one case of typhoid fever has been aborted, the total fabric of those who dissent from my views, reared as it is upon the antiquated and illogical hypothesis—that this "specific infectious;" this "self-limited disease" can not be aborted—is demolished.

The reports heretofore made by me should have left no doubt on this point; nor do I believe that they would have done so, could all or even two or three of the dozen papers which I have written on this all-important subject during the last few years, have been listened to, and deliberated upon by one body of scientific men. They have, however, been so much diluted by their great distribution (having been presented before so many widely separated societies, from the Atlantic to the Pacific) that very few physicians have heard more than one discussion of the subject; but when all these papers are gathered together and published under one cover, what Virchow calls "the brutal force of the figures" can not but convince any thinking and unprejudiced physician "that typhoid fever can be aborted." "*Bis ac ter quod pulcrum.*"

Summarizing, you have my nineteen years of fairly satisfactory clinical experience with the method I have advised (the last thirteen years without a death in my own practice from typhoid, malarial or any continued fever); and as long practice added to my proficiency, a gradual reduction of the duration of the disease as well as a lessening of the intensity and violence of the symptoms.

You have the 800 cases, with 9 deaths, reported by 117 other physicians, some of whom have treated large numbers, as many as 60 cases through severe epidemics, without a death, approximating my best results; and showing a grand total of 1,200 cases of typhoid fever, taken at all stages of the disease, with only 9 deaths; 7 or 8 of which were clearly due to grave complications, to the late stage of the disease at which treatment was begun or to faults of preparation or administration of the remedies.

The foregoing is a brief summary of this, at present, voluminous and cumulative evidence; absolutely apodeictic as to the possibility of aborting typhoid fever; strongly presumptive as to the truth of the declaration that every case can be aborted and that death is a wholly unnecessary consequence of the disease; and more than competent to convict me of grave dereliction of duty, did I not impart my theories to the medical profession in unmistakable language.

[1] The report of this case after having been read in connection with this paper, was presented, and the anatomic specimens exhibited, before the Ohio State Medical Society, in the Transactions of which it will be published. This double report is fully justified by the rarity of the case—no other instance having ever come to my knowledge in which death has ensued after typhoid fever had been aborted—and because of its great value, since it establishes the truth of my theories beyond question or cavil in the court of final resort.

RATIONAL TREATMENT OF PERTUSSIS.

BY FRANCIS T. B. FEST, M.D.
PLANK ROAD, MICH.

With every disease its etiology shows us the way for its treatment. Therefore it is necessary to recapitulate the etiology of every disease for which we wish to outline the therapeutics.

Pertussis or whooping cough is a contagious disease, which manifests itself in spasmodic cough. Although some bacteriologists have found in the sputum, bacilli, we are unable so far to determine their rôle, whether causing, accompanying or only accidental. It is a local disease of the larynx, acting upon the nerve supply, and causing spasms of this organ. The course of the disease shows three distinct phases: the catarrhal, paroxysmal and declining.

The first stage shows only symptoms of mild catarrh of the bronchi, nose or conjunctiva. Pathognostic for pertussis is only the excessive watery secretion from the affected regions. This phase lasts from two to seven weeks, with infants often a few days only.

The paroxysmal stage affirms the diagnosis by its

characteristic "whoops." The expectoration is watery, sometimes bloody. In many cases vomiting follows the paroxysms by mechanical irritation. The vomiting in return can cause disorders of the digestive apparatus. The whoops at times occur as often as every half hour, and as thereby the cyanotic condition which accompanies the whoops occurs too frequently, they lead to asphyxial convulsion and even death.

In the respiratory apparatus the irritation causes, in many instances, capillary bronchitis and catarrhal pneumonia. After duration up to ten weeks the paroxysms are less severe, show themselves more rarely and the disease goes over into the declining stage. At this time the sequelæ or secondary lesions mainly demand our attention.

As we have seen, the disease is a local one. It primarily affects only the larynx; all other symptoms are secondary. This circumstance forms the basis of our treatment. The disease is local—ergo, we treat it locally; it is of neurotic character—ergo, we give a drug that acts upon the nerves.

With contagious local diseases, rational local treatment consists in destruction of the contagion by antiseptics—the most powerful is the most rational. Therefore every local application of any antiseptic improves to a certain degree pertussis. If we cast a glance at the literature, nearly everything was tried; phenol, boracic acid, thymol, resorcin, naphthalin, creasote, benzol, bromoform, mercurials, etc., but they all more or less are of irritating action upon the surface they are brought in contact with, or if not irritating, their action is so mild that their therapeutic effect is as mild too. The experience of the last few years proved the superiority of peroxid of hydrogen over all other antiseptics, except when we have to handle metallic instruments. An exception which interferes not in pertussis.

In pertussis, I use the peroxid with great success for local applications in this way: the child's head is leaned backward and held firmly, another person pulls out and depresses the tongue to bring the glottis into good view; then by means of a bulb atomizer consisting of glass and rubber only, I direct a spray of peroxid of hydrogen solution toward the larynx and if possible through the glottis. This is much facilitated if the child is old enough to pronounce the sound ā.

I always prefer the 30 volume peroxid of hydrogen (hydrozone) and dilute it in the following manner: hydrozone, one part; distilled water ten parts; glycerin one and one-half parts.

If the parents are docile they can be instructed to repeat the application twice or thrice a day. If the physician has a chance to apply it himself, he does well to make the solution fresh every time. At all events it should be made fresh every other day on account of this mixture being unstable.

Of all drugs only one has a really aborting influence upon pertussis, the old reliable, often abolished and always restored belladonna. The only secret of its right administration is the circumstance that we have to give such doses to get the belladonna action; the flushes, (Jacobi); otherwise the administration is without value.

A child of 2 years requires 6 drops of the tincture, three times a day; with the age the dose has to be increased to the proportion of 1.00 as a maximum single dose for an adult (gtt. xxv).

The root, the extractum alcoholicum fluidum can be given to infants of six to eight months in doses of 0.01 t.i.d., children of 3 to 4 years require of the same 0.3. Atropin may take the place of belladonna, beginning in a child of two years with 0.00065 t.i.d. and increase proportionately.

All complications must be abated in time, else our patient will be emaciated. If vomiting occurs at the paroxysms, give menthol. If there be gastritis and catarrh of the bowels, give calomel, bismuth, or still better glycozone. Often we meet gastralgia; then I prescribe for a child over 2 years:

℞ Belladonnæ, tinct. . . . . 2.00.
Mentholis. . . . . 2.50.
Spir frumenti. . . . . 10.00.
Glycerin . . . . . 20.00.
M.D.S. Teaspoonful every two hours.

Glycozone administered in the proportion of two teaspoonfuls, diluted in a wineglass full of water, gave me the most gratifying results in acute cases.

Are the paroxysms severe, we can easily control the spasms by an application of cocain to the larynx.

For the general treatment we shall advise fresh air, good nourishment, tonics and inhalations of ozone. With such treatment the disease can be cut off to a period of only a few weeks.

A GLIMPSE OF IRISH SURGERY.

BY N. SENN, M.D.
CHICAGO.

The wear and tear incident to a large hospital practice, the fatigue following the work during a long college session, and the unrest attending the demands of a progressive and exacting profession made it absolutely necessary for me, this year, to tear myself away from my sphere of activity and transplant myself to some foreign country to seek a much needed mental rest. I selected for this purpose Ireland, Norway and Sweden. It was my object to combine recreation with a study of the clinical advantages to be found in these countries. After an unusually smooth passage of less than seven days, on one of the palatial Cunard ocean greyhounds, I landed at Queenstown Saturday, July 13. At this time of the year, Ireland is at its best, the deep green of the lawns and meadows imparting to the landscape a most pleasing aspect. The stranger here has no difficulty in recognizing the nature of his environment when he sees and hears the ruddy, talkative cab driver, ever ready to give him the first ride on the Irish soil. The open cart is the vehicle peculiar to this country. It is used almost invariably to convey strangers and citizens to their place of destination quickly, if not in the most gentle manner.

The city on my arrival was undergoing one of those convulsive political movements incident to a general election. The political issues were discussed in a most animated manner on the streets, in all public places and in front of churches before and after service. The women appeared to be, if anything, more enthusiastic than the men. The newspapers were brimful of accounts of political meetings and speeches, and the American looked in vain for news from his native country. The Irishman is a born orator and politician. The humblest cabby admires and honors oratory and takes a lively interest in the issues of the day. Eloquence sways the views and actions of the public masses more than argument. The man who can make the best speeches

has the first and last claim upon the favor of the people.

From what I have seen and heard, I am satisfied that the great question which has agitated the Irish people for years—the land ownership, will be amicably settled by the ballot box and not by the sword. What this country needs is not a separate government, but a more just and equable disposition of the land question. The possession of a home, no matter how humble this may be, makes its inhabitants better citizens. As soon as the Irish soil is owned by Irishmen, the burning question now before the people will be disposed of, to the mutual advantage of both countries.

The first medical center in Ireland from the south is

CORK.

This is a typical Irish city of about 100,000 inhabitants. The dialect, customs and habits of the people have not been much affected by outside influences. The most important hospital is the Northern Infirmary. This institution is under the management of the Sisters of Charity. It has recently been enlarged and many improvements have been made. It is a charitable institution where all the poor sick and injured find the doors wide open during all hours of the day and night, regardless of creed. The Sister Superioress will soon celebrate her golden jubilee. She has served the order faithfully for nearly half a century. Although advanced in years, she retains the vigor and ambition of her youth. Her history would furnish ample material for an interesting story, replete with many acts of heroism and stirring events. She served on the battle-fields of the Crimean War and smoothed the pillow of many a poor soldier who died of cholera in Algiers. She is the beloved sister of the distinguished Bishop of Cork, the most Rev. Dr. O'Callaghan. Brother and sister work incessantly in one common cause—the relief of suffering of the deserving sick poor.

It is at the suggestion, and through the influence of the Bishop that a training school for nurses has recently been established in the Northern Infirmary. Seven robust rosy-cheeked young women are now serving as probationers, who furnish the nucleus of a noble institution, the blessings of which will soon reach the rich and poor alike. The surgical clinics in this hospital are conducted by Professors Sullivan and Hobart. The hospital furnishes a rich material for the teaching of accidental and emergency surgery. Fractures can be studied here to great advantage. Antiseptic rather than aseptic surgery is practiced here.

DUBLIN.

This is the great center of Irish surgery. The city with its numerous suburbs contains nearly half a million of inhabitants which furnish an abundance of clinical material for the two medical schools and the many hospitals.

It is unfortunate that this old and otherwise enterprising city does not possess a general hospital where the clinical material could be centralized and made more available for clinical teaching. Not any of the hospitals contain more than 120 beds and these, where the clinical teaching is done, are often distant from the medical school to which they are attached. The teaching of clinical surgery of the Trinity Medical School, by Professor Bennett is done at Sir Patrick Dun's Hospital. This hospital is a very old one and lacks many of the modern improvements which are so essential in the practice of ideal surgery. Notwithstanding the many defects, excellent results are obtained. Professor Bennett has made the study of fractures his life work. A visit with him to the Pathological Museum of Trinity College is a rare treat. Hundreds of the most interesting specimens of all kinds of fractures are shown and explained. The museum is especially rich in specimens illustrating fractures of the neck of the femur and Colles' fracture. The classical specimens which enabled Colles to describe a special fracture through the lower end of the radius which bears his name can be found here, and constitutes an object of increasing interest to the present occupant of the chair of surgery.

Professor Bennett has made a most instructive collection of specimens, illustrating fractures of the first phalanx of the thumb. It appears from this collection that fracture of this bone occurs as frequently as fracture of all the remaining phalanges of the hand.

This museum contains also the skeleton of the famous Irish giant. The Professor is of opinion that it represents a good illustration of acromegaly. The equally famous "card player of Cork" enriched the collection by furnishing it with a skeleton illustrative of extensive and far advanced myositis ossificans. The new bone is everywhere in connection with preëxisting bone, no floating bone being found at the post-mortem, which demonstrates conclusively that this disease is not primarily an affection of the muscles but of the periosteum, the muscles serving chiefly the purpose of a temporary framework for the bone-producing process. The disease begins in the bone-producing tissues corresponding with the origin or insertion of the muscles. Many of the large muscles, notably those of the thighs and shoulders, in this case have been entirely replaced by bone, the muscles in advance of the osteo-genetic substance having been removed by degeneration and absorption.

Numerous specimens of so-called rheumatoid arthritis, which have been deposited in this museum, show the frequency with which this disease occurs in this country, and to what extent pathologic conditions are produced in its advanced stages. The specimens show well the various stages of the affection, from a slight enlargement of the head of the femur and limited deposits of new bone upon the head, neck or trochanteric regions, to complete immobility of the joint by the formation of enormous, rough, irregular masses of bone connecting the pelvis with the trochanteric regions of the femur.

The anatomic department of the museum contains a wonderful collection of dissections and frozen sections that are of such great value in the teaching of anatomy by demonstrations. The professor of anatomy is an original and enthusiastic worker. His whole time is spent in teaching and advancing both the science and art of anatomy. It is much to be deplored that in our own country this part of teaching suffers greatly, by the teachers of anatomy being active practitioners who have to depend for their living largely upon their income outside of their college work.

By far the most prominent surgeon in Ireland today, is Sir William Stokes, a son of the distinguished Irish physician, Dr. Stokes. He is professor of surgery in the College of Surgeons, and attending surgeon

to the Meath Hospital where he operates, and delivers his clinical lectures. He has inherited the inimitable qualities which characterized his father, and has done much toward the advancement of modern surgery in Ireland. He is a fluent and forcible speaker and an excellent operator, is honored and respected by his patients and is a great favorite with his students. He bears his title with modesty and dignity. He will read a paper on "Fractures of the Neck of the Femur" at the forthcoming meeting of the British Medical Association. He has collected numerous specimens which he has studied with great care and which he will use as a groundwork upon which to base a new classification of fractures of the neck of the femur. The views which he will advance and elaborate will do much to illuminate a dark corner in surgery.

Professor Bennett is making elaborate preparations to open the discussion upon this paper, and we may expect a flood of new light upon this subject from these two Irish surgeons. During my visit to the Meath Hospital, Sir William made an amputation of the thigh through the middle third by Teale's method, for sarcoma of the leg. He is painstaking in his work and it is evident that he has the interests of his patient more at heart than a desire to impress his audience with the brilliancy of his work. A visit through his wards satisfied me that the Irish surgeons are wide awake in the development of surgical pathology, and in the adoption of new surgical resources. The museum of the College of Surgeons contains a vast amount of material available for the study of surgical pathology. It seems to me that this almost inexhaustible mine should be more frequently explored in the preparation of scientific papers which require illustrations of morbid anatomy to explain the text.

The training schools for nurses in connection with all the hospitals in this city are in a flourishing condition. The Rotunda Hospital is an object of great interest to every visiting physician. If the old building could speak, it could tell of many sad events, it could narrate many disappointments in love and could tell of many reverses in life. It is here that many young physicians have laid the foundation for their future success as family physicians, by receiving a thorough practical training in obstetrics. Recently, ten children came into the world in this institution in one day, and the number of births during the last year, I was informed, numbered over 2,000. That prudent conservatism is practiced in this institution is evident from the fact that, on an average, only one Cæsarean section and one symphysiotomy are made during a year. Antiseptic and aseptic precautions which are conscientiously carried out have succeeded in almost completely stamping out puerperal infection. The lady Superior is a remarkably bright and intelligent woman, who takes interest in her work and who, at the same time, takes a great delight in the success of the Master of the institution. Professor Smyley, the Master of the Rotunda, met with an accident a few days before I visited the hospital. Like many physicians in this country he rides a wheel, and during one of his excursions he fell and fractured his arm. For a speedy and satisfactory repair of this injury he has sought a quiet country resort from which, let us hope, he will return with new vigor to pursue his good work.

Professor Myles is professor of operative surgery in the College of Surgeons and does excellent clinical work at the Richmond Hospital. He is one of the rising young surgeons in this city. Among the older Irish surgeons who have made Dublin famous as a medical center, must be mentioned Crampton, R. W. Smith, Abraham Colles, Robert Adams, Butcher and John Cusick, all of whom made valuable contributions to surgical literature, beside being influential and eminent teachers.

BELFAST.

In the north of Ireland is the stirring city of Belfast. It is a Chicago on a small scale. The enterprise of its business men has done much toward absorbing many of the commercial interests which naturally belong to the two other large Irish cities—Dublin and Cork. The city bears an aspect of great activity and prosperity. The medical school is a part of the University, and is built upon the same grounds. It is a spacious and commodious building, but the laboratory facilities are as yet quite limited. As is the case with all medical schools that have existed a hundred years or more, the most interesting and attractive part is the museum, which has been made the depository of many rare and unique specimens. Professor Sinclair, the occupant of the chair of surgery in this school, showed me the collection and pointed out many specimens which are of interest to the writer. The museum contains hundreds of specimens illustrating the different kinds of fractures and the process of repair. He informed me that the Irish surgeons understand, by a Colles' fracture, a fracture through the radius near the wrist joint *without* impaction, as Colles described a fracture in this locality which could be readily reduced, with a tendency to re-displacement. English and American surgeons describe under this term, impacted, as well as non-impacted fractures, which is evidently a mistake according to the teachings of Colles, whose views on this subject have been retained by the Irish surgeons. I examined a number of specimens of intra-capsular fractures of the neck of the femur with bony union, in this collection, none of which have evidently ever been described in print.

About a dozen female medical students aspire here for the degree of Doctor of Medicine, preparatory to placing themselves on a level at the bedside with the male members of the medical profession. The "new woman" can be found here as elsewhere, in competition with the sterner sex in the various walks of life.

Professor Sinclair is a young surgeon of considerable promise, who avails himself of all the recent advances and improvements in surgery. His clinical work is done at the General Hospital, an old building with a capacity of about one hundred and forty beds. The operating amphitheater is small and inadequately supplied with modern facilities.

The Irish surgeon has to contend everywhere with the disadvantages incident to old buildings and poorly equipped operating rooms, and yet the results obtained compare favorably with those obtained in institutions supplied with all modern facilties; the best possible proof that they are doing good honest work.

In the General Hospital accidental surgery predominates, which gives the students an excellent opportunity to become conversant with emergency work. Dr. Byers, the professor of gynecology, has fitted up

a model little operating room for abdominal surgery, which is supplied with all the necessary conveniences to perform aseptic operations. All of the patients recently subjected to abdominal operations for various indications were doing well.

The classes in the Dublin and Belfast Medical Schools number on an average about two hundred and fifty.

Fearing that the length of my communication will tax the patience of the readers of the JOURNAL, I will close with the statement that Irish surgery, as practiced at the present time, under the leadership of such men as I have mentioned, is a credit to the profession and the country it represents.

Belfast, Ireland, July 18, 1895.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(*Continued from page 246.*)

DR. EDWIN J. HOUSTON read a paper prepared by himself and DR. KENNELLY on some experiments on

DEATH BY THE ALTERNATING CURRENT.

Having observed a communication in the *Compes Rendus* of the Academie de Sciences, from M. D'Arsonval in June, 1894, respecting a case of apparent death produced by accidental contact with an alternating current circuit, and the means successfully adopted for reviving the person shocked, we desire to enter our earnest protest against what we regard to be the unwarranted conclusion that Dr. D'Arsonval has apparently drawn from this case, taken in connection with his previous experiments with animals. While we do not for a moment doubt the correctness of the general observations in this case, nor that similar cases may frequently arise in practice, and while we are desirous of fully accrediting to Dr. D'Arsonval the great value of the suggestions made by him, namely, that a person shocked by electricity should be treated as a person drowned, a treatment which we would indorse as being proper to employ in all cases where even the shadow of a doubt exists as to the actuality of death from electricity; yet we desire most emphatically to call in question the correctness of the general conclusion reached by Dr. D'Arsonval, that because in this particular case resuscitation was possible, that all cases in which no marked lesions or evident destruction of the tissues are effected, death is only apparent and resuscitation possible.

In the communication referred to, Dr. D'Arsonval arranges all cases of the passage of powerful alternating currents through the human body into two classes, viz.:

1. Where lesion or destruction of the tissues is produced. (Disruptive and electrolytic effects of discharge.)

2. Where the excitation of nerve centers takes place, producing arrested respiration and syncope but without material lesion.

In the first case Dr. D'Arsonval claims that death is absolute; in the second, on the contrary, it is only apparent. As far as we can learn this classification, so far as human beings are concerned, is based on the actual observation of but a single case. This case he appears to believe sufficiently convincing to warrant the conclusion that all cases in which alternating currents pass through the human body without producing evident lesions are capable of resuscitation.

Further, Dr. D'Arsonval appears to believe that the evidence in this case is sufficiently convincing to warrant the monstrous statement made in his communication that even in the electrocutions in the State of New York, death is not produced by the current, thus leaving the public to infer that it has been produced by the knife of the surgeon, in the autopsy which always follows.

In view of the importance of the subject, we append a translation of the facts described in Dr. D'Arsonval's communication as being those upon which he apparently bases his opinion:

"The following is a statement of facts communicated by MM. Picou and Maurice Leblanc, two well-known electricians who were eye witnesses of the accident and who rescued the man to whom the accident occurred. When the accident happened at Saint Denis, the electrometer at D'Epinay connected between two of our three wires showed 4,500 volts, and an ammeter introduced in one of them showed 0.7 ampere.

"At the spot where the accident occurred the three wires were carried by insulators supported by a bracket on the wall about 6 meters above the floor. The man who was shocked was seated astride the lowest bracket holding one of the conductors in one hand. He had with him a telephone wire which he was about to place in position. This wire rested on the bracket on which the man was seated and came in contact with another of the three wires. The circuit was closed through the man, entering by one hand and leaving by one buttock in direct circuit. He was, therefore, subjected to the full pressure of 4,500 volts at a frequency of about 55 periods. It is difficult to say precisely how long this circuit was maintained but certainly for several minutes. The short circuit established set up sparks at the commutator of the D'Epinay apparatus. The operator who attended it believed that an accident had happened on the line and telephoned to La Chapelle to stop. All this represents a sufficiently long time. We were leaving D'Epinay at the moment and we were already on the train when informed of the accident which had just happened. About a quarter of an hour afterward we arrived at Saint Denis. The man was still sitting on the bracket and gave no sign of life. There was considerable difficulty in bringing him down and this operation took at least half an hour.

"Following your advice, we practiced artificial respiration by manipulation of the arms and, at first, without result. I then forcibly opened his mouth and pulled forward his tongue. His lungs then operated almost immediately. In two hours he could speak. He was burned on the right hand and on the buttock. He is now well. . . .

"Several days ago they wrote to me again; the injured man is progressing favorably. It is to be observed that no particular trouble due to the passage of the current through his body has been manifested. No attention has been necessary, except to his burns."

In the first place we desire to point out that the pressure alone of 4,500 volts mentioned is without significance, unless it is taken in connection with the current actually passing through the subject under such pressure. We would also point out the fact that a marked difference exists between cases of the application of the alternating current, as employed in electrocution in the State of New York, where the current is deliberately conducted through the body for the purpose of killing, and such cases of accidental contact as that referred to by D'Arsonval. Here, assuming the correctness of the ammeter reading quoted, namely, that a current of only 0.75 ampères was passing, the resistance of the body could not have been less than 6,000 ohms. The resistance of the body between the electrodes used in the electrocutions of New York, *i. e.*, one on the head and the other on the right calf, is sometimes as low as 200 ohms, and usually not more than 300 ohms, the current strength employed being from 5 to 8 ampères, say seven to ten times stronger than that which is stated to have passed in the case mentioned.

In view of these facts we submit, that, in our opinion, Dr. D'Arsonval is entirely unwarranted in drawing the general conclusion already alluded to. Unwilling, however, to base our opinions on mere surmises, we arranged for a series of experiments on dogs in our laboratory, under conditions in which actual facts only were admitted. Being unwilling to leave to our own judgments the question of the actuality of death, we were fortunate in securing the coöperation of the following eminent members of the medical profession in Philadelphia, namely:

Dr. Judson Daland, Instructor in Clinical Medicine, University of Pennsylvania; Dr. G. G. Faught, general practitioner; Prof. L. Webster Fox, Professor of Ophthalmology, Medico-Chirurgical College: Dr. E. Laplace, Professor of Surgery, Medico-Chirurgical College; Dr. William L. Zuill, formerly Professor Veterinary Medicine, University of Pennsylvania.

One of the observers kept the time of all observations; a second recorded all the observations with the time of their occurrence; a third observed the reading of the Weston alternating current voltmeter placed across the supply mains; a fourth observed the reading of the alternating current ammeter placed in circuit with the dog. The alternating current employed was from the street mains making about 130 cycles per second, and at a pressure of about 1,250 volts, reduced in some cases through a 1.5 K.W. transformer to about 700 volts. Four good-sized dogs whose

weights were noted were successively subjected to the current and the following observations made:

Observations 8:30 P.M., September 18, 1894. The contacts in these experiments were made by cotton waste, thoroughly soaked in an aqueous solution of common salt of density 1.055, the waste being bound to the part with copper wire to which the electric terminals were attached.

Dog No. 1. Weight 31.5 pounds. Contact points right forefoot, (carpus) and left hind foot. Resistance of dog between electrodes 20,480 ohms. Effective alternating voltage 1,250. Circuit closed through animal 8.35 to 30 to 8.35 to 50, *i.e.*, maintained twenty seconds. On the closure of one of the first of the two switches in the dog's circuit, the dog experienced some sensation evidenced by excitement and yelping. This was subsequently ascertained to be caused by leakage through the substance of the slate base of the remaining switch and was found to amount to approximately 2 milliampères. On closing the second switch about three seconds after the first, there was instant rigidity of the animal, the dog leaping forward about a foot, the body balanced on hind legs as in standing, the fore legs apparently flexed, the plunging movement bringing the snout to the ground first, the animal then falling on its side. Dog remained in a state of tetanus till circuit opened. No cry made. Some smoking at points of contact, but no burning. 8:36 P.M., muscles relaxed except in right fore leg where marked rigidity remained. Flesh hot to the touch in the legs which had carried current; 8:37, no evidence of cardiac movement under stethoscopic examination; 8:44, contact points on body still show marked elevation of temperature. 8:45, surface temperature of hind leg (left) 122 degrees F., 50 degrees C. The rhythmic tractions of the tongue as advocated by Laborde of Paris, were continuously made from 8:45 to 9:43 without effect. It was the opinion of all present that death was instantaneous and painless, and that resuscitation was impossible.

Dog No. 2. Weight 26.5 pounds. Evidencing great fear Rectal temperature 103.1 degrees F., 39.5 degrees C. Contacts right fore and left hind leg near carpus; 9:05 to 30 P.M. Resistance 17,430 ohms. The voltage 690 before closing circuit, 685 during closure; 9:08, circuit closed for twenty seconds through dog. Current through dog 1.0 ampere steady. Immediately on closure the animal fell on his side without forward movement in condition of tetanic rigidity. Opisthotinotic curve of back. No smoking of contacts. Death evidently instantaneous and painless; 9:11, body removed to examining table; 9:12, no cardiac movement by stethoscopic examination; surface temperature of body evidently raised to touch. Optic nerve pale pink; blood vessels full (normal condition in dog stated to be veins prominent, arteries thin and narrow). Corneal epithelium wavy; pupils dilated to fullest extent. Iris almost disappeared. 9:16, rectal temperature 104 degrees F., 40 degrees C; 9:17, veins on retina have shrunk to a hair line. Optic nerve growing brownish; 9:20, surface temperature, right axilla, 104.4 degrees F. (40.2 C.); 9:34½, optic nerve pale. In the opinion of all present death was instantaneous and painless. An attempt to resuscitate it being considered hopeless.

Dog No. 3. Weight 44 pounds, short hair; 9:23, optic nerve bright pink, pupils dilated. Blood vessels full and easily discerned; 9:35, rectal temperature 102 degrees F. (39 degrees C.); contacts made one on each fore leg above carpus; 9:40, stethoscopic examination of heart shows rate 60 per minute; 9:45, resistance 31,820 between electrodes: 9:47, voltage 700, during application of current, steady at 690; 9:48, circuit closed and current maintained for ten seconds. Current steady 1.8 ampère. Immediately on closing the circuit the dog which had been lying quiescent on one side was thrown into a tetanic state, except a slow waving motion of the left hind leg which rapidly ceased; 9:49 P.M., deglutitious movements. Corneæ insensible. No cardiac movement. Apparent respiratory movements; 9:50 P.M., deglutitious movements still present, flexion of head, no cardiac movement. Respiratory motion ceased; 9:53 P.M., resistance between electrodes 1,207. Rectal temperature 102 degrees F. (39 degrees C). Rigidity absent. No perceptible surface elevation of temperature; 9:55, optic nerve pale, with complete change of color. Arteries disappeared; veins growing thinner; 9:55, 30, veins thin as hairs, completely emptied in spots and presenting a beaded appearance; 9:56, optic nerve grayish pink.

In the opinion of observers, death was painless and took place within a minute after the closing of the circuit; also that movements after opening circuit were reflex and spinal. Immediate observation after opening circuits failed to show any evidence by a stethoscopic examination of cardiac movement, nor were they present at any subsequent time It was also believed that it would be impossible to resuscitate.

Dog No. 4. Short hair, 29.5 pounds. Optic nerve pink, blood vessels full. Contacts made by cotton waste pads soaked in saline solution pressed into ears with ear flaps bound over them. Heart rate 140 per minute; 10:11, resistance between electrodes 1,200 ohms; 10:13, voltage 700; 690 during application of current; 10:14 P.M., circuit closed for five seconds. Much smoking and slight charring of hair at electrodes. Current not accurately measured owing to brief interval of application, but estimated at 6 ampères. Progressive rigidity. Rectal evacuations. 10:15, irregular movements of extremities somewhat resembling those made in walking. Most marked on left side. Tail wagging; 10:16, same, more marked; 10:16, 30, eyes rotated upward and inward, moderate muscular rigidity of body; beginning to breathe; 10:17, horizontal symmetrical oscillation of eyeballs. Pupils contracted; 10:17, 30, movement of eyeballs gradually ceasing; 10:18, movements of eyeballs ceased; 10:19, confused heart sounds indistinguishable; 10:19, 30, heart sounds now stronger. Convulsive movements of eyeballs; 10:20, heart rate 108, intermitting every third or fourth beats; 20:21, respiration 28 per minute; leg apparently responds to touch; 10:23, Dr. Zuill states that in his opinion the animal is not suffering, but is conscious. It lies perfectly quiet; the respiratory movements good in volume and fairly regular; 10:28, cornea reflex present. Pulling the tail is followed by movements in that appendage, (possibly reflex); 10:31, no response to sensation, such as pin pricking; 10:32, 30, rectal temperature 103 degrees F. The animal lies in a position of full extension; 10:34, attempts voluntary movements to slight extent of disturbance; 10:35, 30, same more marked but unaffected; 10:39, evident response to disturbing touch. Pupil markedly contracted; 10:40, contraction of pupil as persistent as when observed at 10:17. Hearing evident, responds by muscular movements to sound of a table dragged across the floor; 10:42, placed on his feet with difficulty; finally attempts to stand, but staggers and falls. Coördination wanting and improving every second; 10:43, condition apparently dazed, respond to whistle and call. Stands with difficulty and wags tail momentarily. No evidence of suffering. No sound or whimpering; 10:44, condition apparently stuporous, does not respond readily to call or whistle, but evidently notices both; 10:45, 30, again responds distinctly to call and whistle. Standing with some effort and wags tail. Apparently conscious. Gives no evidence of suffering, except possibly slow to-and-fro movements of head may be due to pain in it; makes no sound or cry; 10:46, administration of chloroform; 10:47, unconscious with deep inspiration; 10:47, 30, stertorous breathing. Hard, rapid, irregular and feeble; 10:48, heart stopped. Relaxation of sphincters. Dog dead.

It was the unanimous opinion of the medical gentlemen present that death was absolute and resuscitation consequently impossible in the first three cases. In the third case, however, reflex movements exhibited themselves and although the heart had ceased to beat when the first examination was made, death was not reached until about one minute from the time of closing the circuit; also that in the fourth case where a much stronger current under 700 volts pressure passed through the head during five seconds, the loss of consciousness was instantaneous and complete, but the animal revived without the aid of artificial respiration.

We desire to acknowledge our indebtedness to the able scientific observers who aided us in this investigation, and consider ourselves fortunate in having obtained for this purpose the coöperation of men of such acknowledged eminence in their respective specialties. We hope shortly to be able to make more complete investigation of the conditions under which absolute death follows the passage of powerful alternating currents.

We believe that the following conclusions may fairly be drawn as the result of these experiments:

1. That the passage of a sufficiently powerful alternating current through the body of an animal is followed by instantaneous, painless and absolute death.

2. That, consequently, where electrocution is properly carried out, there is not even a remote possibility of subsequent resuscitation of the criminal.

3. That in cases of accidental contact, where the current passing is not excessive, it is quite possible that death may be apparent only, and that the method of artificial respiration suggested by Dr. D'Arsonval should invariably be followed.

It is a remarkable fact that in the last experiment where

the strength of current was much greater than in the previous instances and passed directly through the head (very trifling leakage only being possible over the surface of the skin) the effect of this current was much less upon the vitality than in the preceding cases.

Dr. Houston, in closing the discussion, said that Dr. Morton had stated that the burden of proof rested with those who made a particular assertion. Now, M. D'Arsonval had asserted that those who were supposed to be killed by electrical shock had not been killed; therefore, it was the duty of M. D'Arsonval to prove his assertion. However, passing by this point he would ask in all seriousness, of this body of scientific persons, accustomed to weigh evidence and not sentimental vagary, what their verdict was after weighing the evidence given by instruments that could not lie—the ammeter and the voltmeter? Assuming that the burden of proof rested on the authors of the paper, had they not more fully met this than the opposite side who urged that death was only apparent? Could they tell in every instance when a person was dead? Had they ceased to put confidence in the results of stethoscopic examination of the heart beat? Did they still disbelieve in the signs of death as given by ophthalmoscopic examination of the retina? Did they believe that four capable witnesses chosen by the State would declare deliberately that they believed the person dead when it was not so? Would they, as the leading body of electrotherapeutists in this country, dare to assume the grave responsibility of throwing doubt on such a death? It seemed to him that the picture painted by Dr. Morton was even more horrible than that painted by M. D'Arsonval. He only wished that the members could have been present and could have seen with their own eyes the instantaneous effect of the passage of the current through the bodies of those dogs, for, if there were any lingering doubts in their minds about the ability of the current to cause death, such doubts would have been quickly dispelled. Electrocution was a most humane way in which a criminal could be executed. Society for self-protection, through its legally appointed bodies, had determined that certain lives should be stamped out, and it was but natural to attempt to produce as speedy and as painless a death as possible. The same assertion had been made about death by the guillotine—that the severed head could for some time afterward do some great thinking. Again, it had been asserted that some animals were harder to kill than others. According to this reasoning, as the ready capability to death varied in different individuals, the fact that you could prove in the case of twenty people that resuscitation did not fail, did not prove anything in the case of the twenty-first individual who might have been of a different type! In his opinion this argument was a dangerous one. Death had been produced by hanging, and every opportunity had been given for resuscitation, but it had failed. Again, death by the electrical current was now very common, and there was a reasonable probability that in the case of every one who had been killed by such an accident every effort had been made to resuscitate him, and yet with one or two marked exceptions, resuscitation had failed. As scientific men, Mr. Kennelly and himself had tried certain experiments, and had brought before the Association certain facts, the correctness of which could not be questioned. Did the members think that they would be justified as a scientific body in passing any such resolution as that suggested—a resolution which would pledge the Association, practically, to the belief that it had grave doubts as to whether or not death could be produced by the electric current? If that resolution were passed, he would certainly move to amend, by resolving that the authorities also be requested to inquire carefully as to the absoluteness of death produced by hanging.

Dr. A. D. Rockwell, of New York city, presented a paper on

GENERAL FARADIZATION.

He said: It has seemed to me that there is a general tendency to undervalue the faradic current at the present time. I would urge that other mechanical measures such as tapping, massage, and rapid vibratory motions are equally serviceable. It seems to me that those who take this view have a very incorrect appreciation of the faradic current. Many years ago when I first began to use electricity in medicine, my efforts were confined almost exclusively to the use of the faradic current. For the time being it enabled me to concentrate my observation on this form of electricity, and one of the most common observations made at this time was the relief of muscular tire after prolonged muscular activity. At this time there was a great pedestrian craze, and I had one of these pedestrians under my observation. I made a general and thorough application of the current to him, and I recall distinctly how much more relief it gave him than the ordinary methods of massage and rubbing. We do not have to seek far for an explanation of these phenomena. Mechanical effects are prominent. There is undoubtedly in these cases, cell exhaustion with sluggishness of the circulation and a deposit of a toxic product of metabolism, all of which are much benefited by mechanical action. On this same principle it is, I think, that we obtain such excellent results from faradization in uterine congestion and induration—there being a sort of circulatory drainage produced. If the faradic current gave only mechanical effects, we would still find it very useful in therapeutics. But it also produces marked physiologic effects, accelerating the circulation and increasing the activity of the excretory and secretory functions. To what extent these effects are purely mechanical, it is impossible to say, yet I think in addition to these mechanical effects there is a direct and peculiar effect on the nerves themselves. So far as the galvanic current is concerned, we have advanced in the way of introducing new and better instruments of precision. With faradic currents of high tension, passed through low resistance, especially by the bipolar method we get very valuable effects, but as regards the outward application I doubt very much if we have advanced greatly. So far as my experience goes, the so-called continuous coil of twenty years ago, yielded a current the characteristics of which have not been surpassed as an aid to nutrition and as a general tonic. It has always seemed to me that the most important thing in electricity in medicine is its nutritional power. This idea of its influence over nutrition was enunciated by Dr. Beard and myself over twenty years ago, and I have advocated it ever since. After the particular form of electricity which gives these nutritional effects, opinions differ according to the extent and character of each one's experience. Static electricity is a very valuable addition to our armamentarium, and I could not do without it; no one can afford to be deficient in the completeness of his electrical outfit. With a magnificent static apparatus and all its pyrotechnic glory set in motion, the treatment becomes exceedingly simple, and I should be glad to assure myself that it was the most efficient method, and that it gave the best therapeutic results. After many years of trial, I can not, however, come to such a conclusion. I regret it in one way, because it is so easy of application, and requires comparatively little judgment. In another sense, I do not regret it because it is a very expensive apparatus. I should be sorry if it were necessary for every practitioner desiring to use electricity, to get such an apparatus. So far as obtaining the nutritional effect of electricity, I think much good is accomplished by faradization alone. Let me commend to you, general faradization alone. It is a sort of child of mine, and parents generally commend their children. It is a method which is tiresome both to the physician and patient, and requires both time and attention to the details, but my own experience for many years past is such that I look upon it as a most important therapeutic resort. The majority of those who use it, use it in a haphazard and incomplete way, sometimes even relegating its work to a nurse.

DISCUSSION.

Dr. W. J. Morton, said that none could fail to appreciate the pleasure and honor of having Professor Houston at this meeting, or fail to appreciate the high scientific work represented in this paper by the authors. Accordingly, if any differences of opinion were expressed it would certainly be in the most courteous spirit. He was one of those who differed with everything that had been stated in the paper except as to the scientific data. He could not agree with the attitude and logic of the writers of the paper. They started by saying that the conclusions of M. D'Arsonval were unwarranted, questioning the facts concerning the death of an individual observed by D'Arsonval, and stating that one such case did not prove anything. The State claimed that the criminal subjected to electrocution was killed. He would say that the proof that death was so produced should be offered by the State yet this had not been done. The burden of proof lay on the State authorities. It had been asserted that this claim of M. D'Arsonval was "monstrous," but it seemed equally monstrous to submit a person, who was the victim of electrocution, to the knife without proof that the electric shock had actually produced death. There seemed to be only one way to settle this question, and that was: 1, after the supposed electrocution to ehdeavor to resuscitate the victim, for he might be in a state of trance and conscious

of everything going on about him. He thought every neurologist must admit to-day that it could not be denied that such a criminal might be entirely conscious of what was going on about him, and even conscious that a post-mortem examination was about to be made on him. 2, if the resuscitation failed, the body should be allowed to remain under observation until decomposition ensued. He did not feel that it had been *proved* that these criminals were dead; he would not say that they were either alive or dead. The authors had told us that they could kill dogs, but dogs could be easily killed. Animals differed in this particular; all knew that cats had nine lives. What was wanted was an experiment on the criminal, and not on the lower animals. He would ask any physician present if he would be willing, in the present state of medical knowledge and electrical science, to put his knife into a criminal, with a millionth part of a possibility of causing that criminal's death. Were we not therefore right in insisting that those who supported electrocution should prove their case? Only a few years ago the electricians had objected most strenuously to the assertion that the ordinary street currents could kill, yet now they had become eloquent exponents of this claim. In conclusion, he thought D'Arsonval was perfectly justified in declaring his doubt as to the criminals being killed by electricity.

DR. GOELET said that he felt like sustaining the position taken by the authors of the paper, for the reason that if there were a sufficient amperage registered as passing through the body of the victim the result was no longer in doubt. However, if the death were made certain by the use of the knife, and the application of the current had been painless and the patient rendered unconscious, then the claim of the State had been satisfied. It was possible that in the majority of instances the actual current received by the body in cases of accidental contact with electrical conductors was only a shunt current, and that therefore the vital organs were not subjected to its full force, and that resuscitation might be sometimes possible after such accidents, as he had suggested in a recent contribution to the *Electrical World*. Accidental shocking, as was well known, produced suspended animation which would result in absolute death if nothing was done to counteract it. Therefore it would seem unwise and useless to raise this opposition to electrocution, certainly in the face of such evidence as had been presented. If the law required the death of the criminal, and that death was rendered painless, he could not see why it should concern us.

DR. WALKER said he regretted to hear that Dr. Goelet advocated killing men by slow degrees. It seemed quite proper for this Association to pass a resolution directed to the proper authorities, requesting that the necessary means be taken to definitely test this matter in the manner suggested by Dr. Morton, and in this way satisfy the world at large.

DR. R. J. NUNN suggested that if the criminal was not killed by the electrical current that it would be unlawful to kill him in any other way, *e. g.*, by the knife. This would not be in accordance with the provisions of the law, for it required that the criminal should be killed by electricity and not by being chopped into mincemeat. He therefore heartily indorsed the suggestion made by the last speaker. The whole subject reminded him of a case in which the coroner's jury refused to render a verdict until a post-mortem examination had been made to make sure that the person was actually dead.

PROF. A. E. KENNELLY said that the question at issue was not whether electricity could or could not kill, but whether under the conditions of electrocutions at Sing Sing, M. D'Arsonval was justified in saying that the criminals there executed probably died under the knife of the surgeon. The speaker said he had witnessed an execution at Sing Sing. At the time, there were four medical men present, all of whom examined the criminal immediately after the application of the current, and they all stated without hesitation that the man was dead, and not only that, but they called attention to the fact that all animal life had ceased, as they could not obtain the slightest evidence of life in his tissues five minutes after the execution. Half an hour later the body was opened. There was not the shadow of a doubt in the minds of these eminent medical gentlemen that this criminal was dead. Further than this, he had read the report of the physician who was intrusted with the work of the executions in the State of New York. In that report there was not the slightest suggestion that, in the eight or nine executions that had been done, there was any evidence of suspended animation. The general impression among the medical witnesses of the execution referred to was that it was really a waste of time to wait as long as they did before performing the autopsy. Regarding the experiments upon which the present paper had been based, he said that as they could not kill human beings in the laboratory they had presented the analogy exhibited in dogs.

DR. A. D. ROCKWELL said that the doubs that had been expressed about the criminal not being killed had seemed so puerile that he had at first intended not to enter into the discussion. We might as well say that a man dying a natural death from disease should not be buried for three or four days, in order to be sure that he is really dead, as to say that we should wait for putrefaction to set in before disposing of an electrocuted criminal. Individuals were killed by accidental contact with an electric wire, and there was no doubt expressed about death having occurred; yet when the State deliberately executed a person in this way such a doubt was expressed. When he had at first read M. D'Arsonval's remarks on this subject he had felt that M. D'Arsonval must have been sadly in need of a theme for discussion.

DR. ROBINSON, of Albany, said that when this matter had been first brought up, a most excellent committee had been appointed by the State, and its members had given much time and thought to the most expeditious and humane way of executing criminals. He was personally familiar with the conscientious work of the committee. As a result of their labor they unqualifiedly recommended electrocution. It seemed that this attempt to take the sentimental side and throw discredit on this work was very unfortunate, to say the least. These electrical executions had been witnessed by quite a large number of physicians in this State, and they seemed to be thoroughly agreed as to the fact that the criminals had been killed by the electrical current. It seemed to be much more humane than hanging, and he hoped no effort would be made to throw a sentimental doubt on this subject.

DR. BEAVER said that the description given in the paper of the condition of the first three dogs experimented upon, indicated to him that the dogs suffered from surgical shock. If he had understood correctly, the current had been passed from the forearm to the hind limb, and had not directly traversed the vital organs; hence, the effect upon the brain must have been reflex. In the case reported by M. D'Arsonval, with a similar location of the points of contact, was it not possible that surgical shock also existed? Under such circumstances as this which obtained in the experiments on dogs, he would feel very much as Dr. Morton did, like waiting for decomposition to occur. He was free to say, however, that when a person was subjected to a powerful current in the manner employed by the State in electrocutions that it was quite probable that a direct effect would be produced on the brain and other important organs in the body, and that therefore immediate death would occur.

DR. NEWMAN said he wondered how it was that Dr. Morton did not assert that those who had been executed by hanging had not been killed. Post-mortems were made after hanging in the same way as after electrocution. Why had not Dr. Morton gotten up before this and asserted that we should always wait for decomposition to ensue before feeling sure that death had occurred? It seemed to him absurd to throw a doubt on such careful and positive reports as those made by Dr. A. D. Rockwell, Dr. Carlos Macdonald, and others, and the only effect of such an agitation would be to throw a doubt on our very humane attempts to execute criminals.

DR. LUCY HALL-BROWN said that it was a very simple matter for the authorities to allow those who had been electrocuted to remain until Nature had announced them to be actually dead, and in that way to prove that electrocution had really done its work. In her opinion much valuable time was being wasted by such a discussion as this.

DR. AUGUSTIN H. GOELET read a paper on

THERAPEUTIC APPLICATION OF THE INTERRUPTED INDUCED CURRENT IN GYNECOLOGY.

In the application of the interrupted induced (faradic) current in gynecology, much depends upon the method of administration, as well as upon the selection of a suitable current appropriate for the pathologic conditions under consideration. To apply a fine wire current indiscriminately, in the belief that it will always produce sedation and the coarse wire current when stimulation is desired, must result in failure in the majority of instances, and when success follows such empirical application of the current it must be regarded as purely accidental.

It is true that in a general way it may be said that the current derived from the long fine wire secondary coil is sedative, and that derived from the short coarse wire is stimulating. But the fine wire current may be employed in such a manner as to produce stimulation which would result in irritation and be actually harmful in some instances. This is true because it is possible to obtain either sedation or stimulation with the high tension current according to the method of application, as will be explained further on.

The stimulating property of this current is in direct proportion to its volume or amperage; that is, the greater its volume and the less its E.M.F. (the resistance of the circuit being appropriately low) the more stimulating it is; and the greater the E.M.F. and the less the volume the more sedative the current becomes.

In the modern induction apparatus this is taken into account, and a simple device is utilized by which these qualities of the current may be varied by varying the length and size of the wire composing the secondary coil. To explain, the greater the length of the wire the greater the number of turns in the coil and consequently the greater the E.M.F. Correspondingly, the greater the length of the wire, the greater the internal resistance and the less the volume of the resulting current. The finer the wire the greater the number of turns possible on a helix of a given size, and the greater the number of lines of magnetic force intersected. The coarser and shorter the wire the fewer the number of turns, therefore, the fewer the number of lines of magnetic force intersected and the less the E.M.F. Also the short coarse wire coil has less internal resistance, hence the greater the volume or ampèrage of the resulting current. It is only necessary to understand the principle of the transformer to be able to appreciate the principle of the modern induction apparatus.

It must be admitted that these induction currents, whether interrupted or alternating, are always stimulating, yet this does not signify that the ultimate result may not be sedative, nor does it involve any inconsistency. Opium is a cerebral and circulatory stimulant yet its effect is sedative.

Stimulation may be of two kinds: 1, exciting when it is painful and irritating; and 2, sedative when it is non-irritating or soothing. In order to make the stimulation of the faradic current non-irritating, it is necessary to eliminate that quality of the current which produces painful contraction. To accomplish this the ampèrage of the current must be reduced to an almost inappreciable degree, and in doing this the E.M.F. of the current will be greatly increased. That is, the long fine wire current is ordinarily sedative in its effect because its ampèrage is inappreciable and its E.M.F. is high; and it produces intense muscular contractions which are painless. Therefore, when we desire a current for sedative effect one must be selected which has a high E.M.F. and an inappreciable volume; then if it is properly administered sedation will be the result of the stimulation that it produces.

The rate of interruptions has, likewise, an important bearing upon the effect produced as, ordinarily, the more rapid the interruptions the more sedative the effect, and the slower the interruptions the more painful and stimulating the current becomes. The possible explanation of this is that with the very rapid interruptions a tetanic contraction is induced which ultimately results in temporary loss of muscular power which is essential for sedation.

As said before, much depends upon the method of application of the fine wire current, since two effects are obtainable with it according to the manner in which it is used.

1. *Stimulation* in the nature of an excitation when the intensity of the current throughout the application is maintained at a point where it is constantly and forcibly appreciated by the patient. In other words, when the force of the current is increased rapidly.

2. *Sedation* when the increase is so gradual as to make it barely perceptible and the application is continued until complete relaxation and insensitiveness are produced.

In other words, if the current even from the longest and finest wire be administered so as to maintain a point throughout the application where the structures are conscious, so to speak, of the excitation, stopping short of that local loss of consciousness which must be reached to secure sedation, the result will be a stimulation, an excitation or irritation which at the same time has been painless.

This form of stimulation is extremely useful and is particularly applicable to conditions in which stimulation with the coarse wire current would be painful and injurious. It is not appropriate, however, in all cases; that is, it is not sufficiently stimulating. Therefore it is necessary to vary the length of the wire so as to vary the stimulating property of the current, and when the current ceases to be sufficiently stimulating it is rendered more so by shortening the wire in the secondary, thus lessening the E.M.F. and increasing the volume of the current.

A coil of one length of wire, as has been suggested, is not sufficient because it gives an unvariable current. The volume of the current from such a coil may be lessened by interposing a resistance like a rheostat, but it would not be possible to increase the volume of the current beyond what such a coil is capable of giving.

In gynecology the faradic current is particularly useful in painful affections of the female pelvic organs and those attended with congestion, as well as in subacute and chronic inflammatory states. Here the fine wire current is appropriate.

When there is general loss of tone and at the same time the parts are sensitive, stimulation with the fine wire current is more satisfactory. In these conditions the stimulating property of the current may be greatly increased by using, from time to time, a shorter length of wire until finally the coarse wire current may be employed with benefit and without injury. In the beginning, usually in such conditions, this would be impossible.

The coarse wire current is more directly applicable to conditions of subinvolution and where there is venous engorgement. In these cases the fine wire current would be usually inappreciable and, therefore, without effect, though occasionally cases of this character will be encountered where, at first, the coarse wire current will not be tolerated. Then a current from a finer wire must be employed at the start. I have always contended that the current to be effective must be appreciable, in the beginning at least, and clinical experience confirms this opinion.

To enumerate in detail the diseases of the female genitalia to which this current would be applicable, and outline the method of application in each would consume altogether too much time for this discussion; but I will briefly mention some conspicuous examples where, if properly employed, its use is attended by marked and satisfactory results.

In ovarian hyperemia, ovaritis and edema of the ovary, as well as in ovarian neuralgia, the results from the use of this current have been highly satisfactory, and I may say that it has been the exception when these conditions have not yielded promptly to the current employed in a proper manner. These conditions are often secondary to disease of other organs operating to produce them, when faradization alone will not accomplish the desired result. For example, edema of the ovary, due to varicocele of the pampiniform plexus, could not be influenced permanently by faradization, likewise an ovaritis due to an active endometritis would not yield to faradization unless treatment were instituted for the diseased endometrium.

In subacute and chronic salpingitis, as well as in catarrhal endometritis and some other forms of endometritis, depending upon pelvic congestion, the faradic current has yielded excellent results in conjunction with negative galvanic applications to the endometrium.

In salpingitis it acts by subduing the turgescence and tumefaction or edematous infiltration of the tubal mucous membrane and the tube walls by stimulating contraction and peristalsis of the tubes, thus favoring drainage by causing them to empty into the uterus. In this manner, very often accumulations are removed and the condition may be cured, provided, that at the same time, appropriate treatment is instituted for the coexisting endometritis, for I am satisfied defective drainage from the tubes is more often caused by obstruction of this nature than by actual occlusion.

Recent inflammatory exudates usually disappear under faradization frequently repeated. It is my experience that the result is more speedily obtained by this current than by the galvanic.

I have repeatedly demonstrated the possibilities of faradization in this condition at my clinic. In one case which I recall, there was complete fixation of the pelvic contents with extreme sensitiveness which, according to the history, had existed for some time, yet mobility was restored by faradization alone, nothing else having been employed.

In uterine displacements nothing has been found to yield such uniformly satisfactory results as a combination of faradization with galvanism of the uterine body through application to the endometrium. The results which I have been able to obtain lead me to regard this as the only satisfactory treatment of uterine displacements. Since my paper upon this subject, read before the New York Obstetrical Society several years ago, I have been following it up in the same

lines laid down there, and nothing has yet occurred to change my views as therein expressed. On the contrary, a riper experience confirms me in the belief that it is, as I have said, the only satisfactory and rational treatment of these conditions.

Dysmenorrhea dependent upon any of the above named conditions as a cause is promptly relieved by faradization, especially if negative galvanism of the endometrium is employed conjointly. The induced current is also useful in relieving the pain associated with fibroid growths of the uterus.

In relaxed conditions of the uterine supports, allowing descent of the organ, the faradic current is particularly useful; here the coarse wire current is most often indicated, but in some cases fine wire stimulation is better tolerated and is to be employed in the beginning. It is necessary, however, to make the current as stimulating as is possible for it to be borne without producing actual pain and discomfort.

One case which I recall will serve to illustrate what this current can accomplish in these relaxed conditions. The patient who was referred to me by Dr. F. C. Valentine of this city, was 26 years old and suffered with complete procidentia resulting, no doubt, from repeated miscarriages. The condition had existed for several years when she came under my observation and most of the time the uterus was completely prolapsed outside of the vulva. It had been impossible to find a pessary which would remain in the vagina, and the only relief she had been able to obtain was from hot water douching. When this was employed and she remained on her back afterward the uterus would not come down for an hour, but if she assumed the erect position it would immediately protrude. The uterus was enlarged and heavy, though the cervix was not lacerated and the perineum was intact. I advised bipolar faridization with the coarse wire current. After the first application, which was given in my office, the uterus did not protrude for several hours though immediately afterward she returned to her home a distance of several miles. After the second application it was retained for twenty-four hours, though she was constantly on her feet. At the end of a week, the application having been repeated every day, the uterus occupied the normal position in the pelvis, except that it was retroflexed. The applications were afterward made at longer intervals and a complete cure was obtained.

I will not burden this discussion, or tax your time, by relating in detail in support of the value of this current in the pathologic conditions enumerated, but I can not refrain from a brief mention of some cases where it seems to me the results obtained have been more than ordinary.

For instance, Mrs. A., a young married woman, consulted me in the summer of 1893 for pelvic trouble, having been told by several gynecologists that laparotomy was necessary for the removal of the pelvic organs. She had been married four years but had never been pregnant. Examination revealed an endometritis with the right tube considerably distended and the left thickened, ovaries enlarged and excessively tender. Here was a case with a grave outlook for conservative treatment; she had declined an operation and had been referred to me, believing that I could cure her without removing the diseased organs. It was impossible for me to promise from treatment anything more than temporary relief of the symptoms, and I frankly said I would do all I could for her, but I also thought an operation would ultimately be required. I found, however, that the treatment instituted established drainage of the tubes into the uterus and the distended tube rapidly diminished in size. She was kept under treatment for two months when she left for the West to join her husband, who is an actor, her condition being so greatly improved that further active treatment was deemed unnecessary. She wrote me in the early part of the summer that she had been perfectly well since discontinuing treatment though now she thought she was pregnant. Within the past month I have seen her and find that pregnancy has advanced to the seventh month. This is the best possible evidence that the cure is complete.

I recall another case of a milder character which also illustrates the value of this current. The patient, a young married woman, was referred to me by Dr. R. W. Taylor of this city. A year before coming under my observation, a prominent gynecologist advised laparotomy, but it was declined, and she improved somewhat under the treatment then instituted, though she continued to suffer particularly at her monthly periods. The diagnosis in this case was endometritis with anteflexion and catarrhal salpingitis and ovaritis. Faradization and galvanism were both employed. A cure was complete at the end of three months.

By way of conclusion, I will show you some improved patterns of induction coils, in which are embodied the essential features suggested in my communication to this Association at its first meeting in Philadelphia. I have had this particular combination of coils in use now for more than two years, and am fully convinced that the variable qualities of the current as obtained from these different coils make the apparatus suitable for all purposes where the faradic current is to be employed.

After the adjournment of the morning session, DR. GOELET exhibited various forms of faradic apparatus, and explained the advantages and disadvantages of each.

(To be continued.)

SELECTIONS.

Advances in Brain Surgery.—(von Bergmann before the Congress of the German Society for Surgery in Berlin.) He alludes quite briefly to the operative treatment of cranial tumors. According to Starr's trustworthy researches, out of 100 tumors of the brain only 6 are at the same time recognizable and removable, and of these a successful operation will be performed upon scarcely a half. So surgery can do little enough in the treatment of such affections, in spite of the advances in diagnosis and particularly in the technique of operations. The hope to cure epilepsy, at least Jacksonian, by operation proved deceptive, and one can now really regard as an object for surgical interference only those cases of cortical epilepsy, in which a tumor, for instance a cyst, which may arise not altogether rarely from a traumatic intra-meningeal extravasation, lies in or over one of the circumscribed cortical centers.

Very significant, on the other hand, are the advances in the domain of the surgical treatment of intracranial suppurations, especially the aural abscesses involving the brain, the meninges and the sinuses. These are relatively rare. Out of 1,000 acute and chronic suppurations of the ear, three or four cause death from extension to the meninges, the sinuses, or the brain itself. The chronic processes are particularly dangerous, and especially those arising from masses of cholesteatoma in the inner ear. Those cases are very critical which are marked by acute or subacute outbursts and have an intermittent fetid discharge, and in which at the same time temporary obstructions arise to the discharge of pus, through the growth of polypus-like granulations in the middle ear and the deeper part of the external meatus.

The aural affections of the brain, the meninges and the sinuses begin, as a rule, at the point where the original suppuration in the temporal bone has pushed up to the vault of the skull. But a main point of aural suppuration is the cochlea. Thence the process spreads in two directions, into the mastoid antrum, and through its roof, the tegmen tympani. The spread of suppuration in the latter direction leads directly to a pachymeningitis, from this to an extradural (epitympanitic) abscess or to an intradural abscess of the brain. Most cerebral abscesses of aural origin lie in the temporal lobes, and so the chief extension is through the small and circumscribed point of exit in the vault of the tympanic cavity. Bergmann explains his method of reaching the roof of the tympanum from the cranial cavity by lifting up a parallelogram 2½ cm. high by 3–6 cm. wide from the vault of the temporal bone, and shows how one can in this way easily enter the mastoid process, the external meatus and the sigmoid fossa.

The greatest advance which brain surgery has made in recent years, Bergmann sees in the operative treatment of thromboses of the sinuses caused by and associated with suppuration. Most of these are due to the extension of aural affections of the mastoid process to the wall of the sigmoid fossa and the consequent infection of the adjacent sinus wall. In many cases there is extensive suppuration enveloping the sinus, very often at the same time epitympanal abscess. It was Zanfall's idea to thwart the disastrous results of septic thrombi of the transverse sinus by tying the jugular vein and then opening and clearing out the sinus. The sinus can be reached also from the mastoid process as well as from the cranial cavity after craniectomy at the vault. The latter method Bergmann describes as the ultimate supplanter of the former. Thrombosis of the transverse sinus with the abscesses around the sinus is also the usual connection between middle ear suppuration and abscess of the cerebellum, the latter generally situated near the sigmoid fossa.—*Wiener klinische Rundschau*, June 23, 1895.

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SATURDAY, AUGUST 17, 1895.

PROFESSOR HUXLEY.

The death of this very eminent man who was an educated physician and most learned biologist and teacher, brings out one phase of his work which every physician should copy. All his writings are models of concise exact expressions conveying the precise meaning intended. This was not easy to him, but was acquired by hard labor and persistent study. Many of his works were written three and four times over, and cut down and altered continuously. He explained that his idea of good writing was to make it so clear and concise that no critic could draw any other conclusion but the one intended. In this he succeeded, and the various polemic discussions he had with learned theologians always brought out a clear, crisp, ringing range of thought, in contrast to the heavy learned logic of his opponents.

Physicians and even teachers show great faults in this direction. PROFESSOR HUXLEY's idea that clear methods of expression were equally essential to the thought itself, is not recognized in much of the medical literature of to-day. The slang phrase in newspaper offices, "boil down," meaning condense, is only valuable when combined with clearness and exact words, that have only one meaning in the form they are used.

PROFESSOR HUXLEY's writings are models of scientific clearness, and should be studied. While his work was not along the lines of practical medicine, he rendered great service to the higher ranges of comparative anatomy and paleontology. He was not only a great teacher, but he was a great student all his life. Nothing that interested him was examined or studied in a superficial manner, or presented to the public in a vague uncertain way.

He never grew egotistical with all his learning, but rather became more conscious of his limitations, and the great unknown world that widened constantly about him. He was literally a self-made man, coming from a family of school teachers, and was obliged to earn his living and rise by his own exertions exclusively. He died, one of the leading scientific men of this century, whose name and work will be most intimately associated with the scientific advances of the age. Science, to him, had no commercial side. It was the search for truth, for the pleasure it gave.

"MODERN HYGIENE."

In an editorial article under the above title, a valued contemporary[1] makes an assertion which the JOURNAL has been unable to verify, and yet which involves a question of such practical importance, both to health authorities and to the public, that it demands verification if correct, or withdrawal, if the reverse, because of the mischief that might result if accepted as a basis of action by those charged with the protection of the public health.

The text of the editorial is a circular on tuberculosis for the guidance of the laity, issued by the Health Commissioner of Brooklyn and in which, according to our contemporary, "conditions seem to have been taken for granted which are not by any means incontrovertible facts; on the contrary, to some extent, they can be proved to be incorrect; and unless the ground upon which such provisions are based is indisputable and capable of being defended against any attacks of authorities upon such subjects, health authorities should be very cautious in formulating laws with regard to matters of this nature."

After commending, with some reservation, the advice in the circular that "consumptives should not spit upon the sidewalk, or on public conveyances or in places of public congregation"—advice which it very properly urges should "be extended so as to include everybody, whether consumptive or not"—our contemporary says, "it has been found, however, that *tubercle bacilli die in the sputum as soon as the latter becomes thoroughly dry*, which fact will considerably diminish the urgency for such a law." If this really is a "fact" it must be admitted that not only the urgency for a prohibition of indiscriminate expectoration would be considerably diminished, but that the spread of consumption is by no means to be limited so easily as optimistic sanitarians assert in their circulars and other preachments.

But, is it a "fact?" Without having made an exhaustive search of the literature of the subject, the JOURNAL will not undertake to deny the assertion, but would like "a bill of particulars." The only quasi-affirmative statement recalled is that of PRO-

[1] Medical Review, July 20, 1895.

FESSOR KOCH at the Tenth International Medical Congress, Berlin, 1890, to the effect that, when exposed to direct sunlight in sputa, the tubercle bacillus is killed in from a few minutes to several hours, depending upon thickness of the sputum; but in diffuse daylight it survives from five to seven days. This, however, can hardly be the basis of our contemporary's assertion, since it takes no account of bacilli expectorated in cloudy weather or otherwise protected from the direct rays of the sun.

On the other hand, the previous experiments of KOCH, SCHILL and FISHER[2] show that dried tuberculous sputum retains its infectiveness for several months, though gradually diminishing in degree, CADÉAC and MALET[3] dried and pulverized the lung of a tuberculous cow, and were able to produce tuberculosis in guinea pigs by its inhalation at the end of one hundred and two days. LAWIZKY'S experiments[4] to determine the length of time of the infectiveness of sputum in living rooms, show that, while the virulence is gradually lost, it is retained for from two to five months in the diffused light of an ordinary living room. So resistant, in fact, is the bacillus to heat and desiccation that FRAENKEL and EHRLICH were led to study the possibility of spore formation to account for it.

From all of which it would appear that the "sometimes greatly erring health officers," who, "in a circular of this kind . . . portray the present tendency of sanitary efforts of overzealous enthusiasts," are still in good company and, at most, can only be asked to modify their advice to consumptives to the extent of restricting them from spitting on cloudy days, and of urging them to secure exposure of their expectoration to the action of direct sunlight.

MILITARY SURGERY OF THE FUTURE.

An interesting abstract of SIR WILLIAM MCCORMAC'S address before the British Medical Association at the annual meeting last week, is cabled by the London correspondent of the *New York Sun*, under date of August 3. The eminent surgeon's theme was the effects of the latest forms of weapons used in recent wars, and a forecast of the surgery of the next great war. The new fire-arms, throwing smaller projectiles at higher velocities, do not seem to possess the disabling power of the larger caliber weapons which they are superseding; but the increased ranges, the greater rapidity of fire and the use of smokeless powder must result in a larger proportion of wounded, even though the injuries should be less serious from a surgical standpoint.

The important matter for consideration is, will the injuries inflicted by the new projectile be more amenable to successful treatment? VOLKMANN had pointed out that the subcutaneous character of gun-shot injuries of bones and joints makes them less dangerous than compound fractures, with the more extensive damage to the soft structures produced by other causes. During the recent war in Chili, flesh wounds, which had not been probed and thus infected, healed rapidly. The favorable character of the lung wounds was especially noticeable, and bones were less comminuted and were united in about half the time formerly required. DE RIVIERO, of Valparaiso, had made similar observations; he had noticed the smallness of the apertures made by the Männlicher bullet, and the injuries generally were less dangerous to life. Similar results were observed by the medical officers of the Chitral expedition. The British troops were armed with the Lee-Metford rifle and SURGEON BURDEN reported that its wounds through soft tissues, at both short and long ranges, were clean and incised with little bruising and healed quickly. Holes through bones were made with little splintering and in no case was there any explosive action. The damage caused by the large bore bullets of the enemy was much more severe.

It might be taken for granted that the number wounded, in proportion to the number engaged, would, in the future, be much greater than before, and the supply of ammunition would be larger as the facility for carriage would be greater. Moreover, smokeless powder would increase the accuracy of aim and SIR WILLIAM thought the next great war would be more destructive to human life, and that the number of injuries, and, in many cases, the severity of the injury, would be largely increased; but very many cases would remain less severe in character, more capable of successful treatment and less likely to entail future disablement, while improved sanitation and antiseptic methods would increase enormously the proportion of the recoveries.

BACTERIOLOGIC EXAMINATIONS IN NORTH CAROLINA.

The July Bulletin of Board of Health of North Carolina, conveys the information that bacterial investigation is an accomplished fact in that State. The Secretary, DR. R. H. LEWIS, gives the following account of the beginnings of this most commendable advance in the "Old North State:"

"At the conjoint-session of the Board with the State Medical Society at Greensboro, in 1894, PASSED ASSISTANT-SURGEON KINYOUN, who was present as the representative of the U. S. Marine-Hospital Service, announced that the Service would be glad to give, in its laboratory at Washington, free of charge, a six weeks' course of instruction in practical sanitary bacteriology, to duly accredited representatives of our Board. DRS. ALBERT ANDERSON, of Wilson, and W. T. PATE, of Gibson's Station, promptly signified their desire to avail themselves of the opportunity.

2 Mitth. aus dem K. Gesemdheitsamte, Bd. ii, 1884.
3 Etude experimentale de la transmission de la tuberculose par l'air expire et par l'atmosphere. Rev. de Med., No. 7, 1895.
4 Inaugural Dissertation, St. Petersburg. 1891.

They were duly accredited, and in January of the present year went to Washington, at their own expense, and spent the full time in practical study and work under the immediate instruction of DR. KINYOUN."

Since their return, they have each fitted up a laboratory, and are now prepared to make biologic examinations of drinking waters, and of the cultures in suspected cases of tuberculosis and diphtheria. They have agreed to a special arrangement for official work in drinking waters. Owing to very small appropriations by the State, permits for such examinations, at the expense of the Board are given with much circumspection. Physicians who suspect a water as the cause of disease, must first submit the matter to their county superintendents of health or to the health officers, if there be such in their respective localities, who will report to the Secretary. If, in the judgment of the latter, the expense would be justified, a permit will be issued, with the necessary instructions regarding the taking of the sample for examination. The Board will pay for the work done under this form of permit.

We trust that this modest initiative will result in a substantial appropriation by the Legislature of the State, for the building up of a well-organized State laboratory for sanitary investigation.

NEUROIDIN, AN ANALGESIC.

DR. UGO LIPPI has, in *Il Policlinico*, given an account of his experiments with the new analgesic remedy of VON SCHERING. His experiments included those made on persons not having pain of any kind, in order to determine the limits of tolerance of the drug, and the possible toxic effects which might be caused by it. Also, experiments were made on persons suffering from pain of various kinds, either in the form of neuralgia, or as symptomatic of organic lesions. These included four cases of sciatica, one case of slight attacks of angina pectoris in a patient with atheroma of the aorta; one case of intestinal pain caused by malignant growth of the retroperitoneal glands; one case of neuralgia in a person suffering from polyneuritis; one case of brachial neuralgia in a neurotic subject; one case of gastric pain caused by epithelioma of the gall bladder; one case of headache in a neurotic person, the subject of a neuralgia simulating polyneuritis; one case of neuralgia of the bladder and stomach in a patient suffering from cancer of the liver; one case of muscular pains, probably rheumatic, in a tuberculous subject; one case of pains in the arms, symptomatic of spinal irritation.

As a result of these experiments, LIPPI draws the following conclusions:

1. Neuroidin may be given in doses from 0.5 to 3 grams; these are effective and well borne, and may be repeated several times a day.

2. These doses are perfectly harmless, and produce no other ill-effect than occasional diarrhea, with or without intestinal pain.

3. Hardly any physiologic effects were noticed; in rare cases there was a very slight diminution in the heart-beats; no marked effect on the kidneys was observed.

4. As regards the analgesic action of the drug, it was found to have the property of soothing and even abolishing pain, whether neuralgic in character or symptomatic of an organic affection; its action, however, is uncertain, and notably inferior to that of other similar remedies, such as phenacetin and antipyrin. The remedy is not readily soluble in the vehicles in common use.

ALCOHOL BY SYNTHESIS.

Chemists have known that ethylic alcohol can be made artificially, and with such exactness that it can not be detected from alcohol made by natural processes. The alcohols of commerce are governed by a breaking down process, from a complex to a simple, by transforming starch or sugar through the aid of yeast and fermentation. Building up alcohol synthetically from carbon hydrogen and oxygen is a new phase that promises great revolutions in many directions of science and art.

The recent discovery of MR. WILSON, of acetylene gas from lime and coal dust treated with electricity from carbon electrodes, has made it possible to produce ethyl alcohol so cheap that all other processes will be abandoned. Organic chemistry has been leading in many fields of commerce, and the question of building up products in demand, cheaper than they can be made by natural processes, is answered affirmatively by the constantly increasing substances on the market. Fruit flavors, colors, and sugars and many other products are made far cheaper and of equal value to the same substances as produced by nature.

Foods of various kinds are now made in the laboratory, and chemists have asserted that not far away beefsteak will be built up and furnished to the masses. The possibility of doing artificially or chemically what is now done by nature, seems to be limited only by a want of sufficient knowledge and control of natural forces. Should WILSON'S discovery of cheap acetylene prove to be what is expected, ethyl alcohol will be made for 2 or 3 cents a gallon or less. Its uses in the arts will be largely increased, and as a beverage it can be cheapened to an enormous extent to the consumer. The occupation of distilling will be superseded, and the manufacture of whisky and other alcoholic beverages will change, and the great problems which center about them commercially, scientifically and socially, will have new features.

Who can predict what discoveries will follow in

the combinations of carbon, hydrogen, oxygen and nitrogen, and the possibility of tearing them down and putting them up again?

WAIVER OF PRIVILEGE MAY BE MADE AT ANY TIME.

The New York code provides that "a person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity." This, another section declares, applies to any examination of a person as a witness, unless expressly waived upon the trial or examination by the patient.

Commenting upon the foregoing, the general term of the Supreme Court of New York says, in the case of Dougherty v. Metropolitan Life Insurance Company, decided May 13, 1895, the Legislature locked up the secret and gave the key to the patient. He can forego the privilege, and unlock the lips of the doctor. The statute requires that to be done expressly upon the trial, but there is no method prescribed for the accomplishment of the object. If the patient be alive, an entry upon the record at the trial by his counsel would be sufficient. In case of his inability to attend the trial, a written stipulation signed by him, and entered upon the record, would remove the prohibition. That being so, it must certainly be immaterial when the stipulation is signed. It may be signed long before the trial in anticipation of that event, and with the design of having it used thereat, as by signing an application for life insurance containing a stipulation that such statutes as the above "are hereby waived, and it is expressly consented and stipulated that in any suit on the policy herein applied for, any physician who has attended or may hereafter attend the assured may disclose any information acquired by him in any wise affecting the declarations and warrants herein made." The reasonable construction of the statute, says the court, is that the provisions are expressly waived upon the trial if a proper stipulation to that effect be produced thereat, and entered upon the record, regardless of the time when the waiver was executed. Nor is the provision for such waiver contrary to public policy. The general public can have no interest in the execution of the statute in question. Its operation can neither be injurious nor disadvantageous to the public, and it is not opposed to good morals. It simply prescribes a rule of evidence between party and party upon the trial of a cause.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

It is hard to separate the enthusiastic members of our profession, and it is certain that they will come together without regard to geographic boundaries, at the Detroit meeting. The program, elsewhere printed, shows no lack of good papers; an average of nearly twenty for each day being promised; and the well-known hospitality of the citizens and the Detroit profession insures that all available time will be spent profitably and agreeably.

The Mississippi Valley Society has now become a National medical society, and is rapidly extending its membership east of the Allegheneys—and it is pleasant to record that nine-tenths of its members are loyal members of the AMERICAN MEDICAL ASSOCIATION and enthusiastic workers in the great cause of professional organization.

We doubt not, however, that gradually the medical men of the whole interior valley of North America, as described by DRAKE, will become one medical organization, potent for good to all worthy members of the medical profession.

WISCONSIN SESSION LAWS.—The statutes enacted at the last session of the Wisconsin Legislature are now published and made accessible to the public. Elsewhere we print such extracts from them as are of interest to the medical profession.

CORRESPONDENCE.

Letters to my Hospital Internes, Past and Present.

BY CASEY A. WOOD, M.D., OF CHICAGO.

II.

PARIS, July 14, 1895.

Gentlemen:—Perhaps the most noticeable fact connected with the more prominent oculists of Paris is their foreign names and origin. We find several Germans, a Pole, a Greek, a Netherlander and even a Canadian graduate on such a list. Whatever else this may mean, it is at least evidence of the tolerant and cosmopolitan character of French surgery. Evidently, also, they have been asked by the French public, not where they were from, but what they knew about ophthalmology.

Probably the best known ophthalmologist in Paris is De Wecker (public clinic 55 Rue Chercher Midi, 4 P.M. daily; operations at 5 P.M.), one of the fathers of ophthalmology and justly celebrated as author, teacher and operator. He has always a large following of students and patients and is very courteous to strangers. He showed me his new glass-and-nickel steel operating chair, made on the model of one in which he said he had done 30,000 operations. He gave his own anesthetic on several occasions, not for want of an assistant but because he had "views" upon the subject of general anesthesia. De Wecker prefers the illumination from a small electric hand-lamp, while operating, to sunlight, as he thinks that the operator, his assistants and the onlookers can all see better. It seems to me that this is merely an example (and we find many of them among surgical appliances) of the adaptation of an instrument to the requirements of a particular surgeon. He finds that some form of instrument suits *him* better than any other and forthwith discovers reasons why it should be adopted by the rest of the world. De Wecker is markedly short-sighted and is obliged to approach his own eyes to the patient's face while operating; consequently an electric lamp *is* better for all concerned when *he* is operating.

I saw Panas, another well-known oculist (professor in the University, Hotel Dieu, fifty-nine beds for eye patients, entrance off the Place Notre Dame, noon daily, operations 2 P.M.), and the man who advocates the substitution of biniodid of mercury for sublimate as an antiseptic in surgery, on the ground that it is less irritating than, is quite as good a germicide as, and can be more effectually employed in one-half the dose of mercuric chlorid. Lately he has been in the habit of using the iodid dissolved in sterilized olive (or almond) oil as an antiseptic application to the lids and lashes (and for hypodermic injection in general medication) before operating for cataract. The ocular region generally is thoroughly cleansed the evening before the operation and the oil applied. The eye is then bandaged until the moment of operation. Laboratory experiments have proved that the conjunctival sac and the lid edges contain fewer pathogenic bacteria after this treatment than when any other plan is followed; also the evidences of ocular hyperemia are few or wanting. During the operation he uses a large Graefe knife and cuts through one-half the corneal circumference. His extractions are without iridectomy and he does not hesitate to employ what appeared to me to be a good deal of force and much manipulation in replacing the iris, using a large scoop-like repositor. But this rough treatment, he says, is never followed by iritis. He has given up the use of the syringe for washing out the anterior chamber after removal of the cataract, since employing the iodid oil solution. The presence of pathogenic microbes is what he fears in producing ocular inflammation rather than traumatism (*e.g.*, the use of the iris repositor) or foreign bodies in the anterior chamber—such as lens matter and capsular remains after cataract extraction. He uses eserin ointment 1 per cent. after the operation for cataract, then iodoform dressing, both eyes being bandaged for three days.

Some of the English operators, Lang, for example, always examine the eye twelve hours after such operations, as in their experience prolapse of the iris occurs, if at all, within that time. They also say that the prolapse is more easily dealt with then than later.

After enucleation, Panas sutures the conjunctiva and puts in rubber drainage, thereby securing a better socket for the artificial eye.

I saw a good many cases dressed with iodoform in all the clinics, and I can not help thinking that the French nose is after all less susceptible to that odorous application than are our American olfactories; you will remember that even the poorest public patient objects, with us, to iodoform dressings when applied to the nasal region.

In the clinic of Abadie (172 Boulevard St. Germain, 1 to 4 daily, operations at 3) I saw the chief give a subconjunctival injection of one drop of a weak eserin solution immediately after removal of cataract. He did his extraction without iridectomy, like almost all the French operators—as opposed to the English surgeons, of whom it may be said that the converse is true. Abadie, for cataract extraction, uses an eye speculum with the spring turned toward the nose, having previously cleansed the conjunctival sac with cotton-covered retractors. This latter proceeding recommended itself to me since reading Gasparini's report, in which he showed that the useful action of certain fluids (borated solutions, sterilized water, weak bichlorid mixtures, etc.), employed in irrigating the eye, depends not so much upon their germicidal powers as upon the stream of water acting as a mechanical agent in detaching and washing away the colonies of cocci.

Abadie's first assistant kindly showed us a number of syphilitic patients whom he was treating after the method of Marcelli, of Milan, by the intravenous injection of mercuric cyanid. When employed in the usual hypodermic manner the following is the formula commonly prescribed:

Cyanid of mercury	1	grm.
Muriate of cocain	0.50	ctgr.
Distilled water	100	grms.

Of this, 1 cubic centimeter every two days. The cocain is omitted when the injection is made *intravenous, i.e.*, into any of the superficial veins of the arm, and a centigram is given at one dose every two days. A special syringe is used, there is very little pain and I saw no disagreeable after-effects. Abadie claims from this treatment much better and earlier results than when mercury is given by inunction or by any other method.

The Quinze-Vingts, probably so-called because it had 300 beds when first founded, is one of the oldest hospitals in Paris and has connected with it the largest indoor eye hospital in the world—the *Clinique Nationale d' Ophthalmologie* (Rue de Charenton, 28, daily clinics, 11 to 12, operations at 1 P.M.) with 190 beds and a very large dispensary practice. Prominent on its staff of surgeons is A. Trousseau, a member of that family illustrious in the annals of French medicine. He is a very genial man and received us with great kindness. I have never seen a more rapid operator in any department of surgery. The way in which cataracts were removed, squints straightened and lid operations performed was simply amazing.

The Gilet de Grandmont operation for congenital ptosis was done in two minutes, while cataracts were extracted in about twenty seconds! For the latter, which were without iridectomy, he used only a Graefe knife like the English operator Critchett. Separating the lids with his left thumb and forefinger, he quickly punctured the cornea, used the point of the advancing knife as a cystotome, made his counter-puncture, completed the incision, pressed upon the lower third of the cornea with the back of the knife, and before one could say "Jack Robinson," the opaque lens lay upon the cheek. I saw him do half a dozen such operations, with good immediate results, inside of fifteen minutes. A starch bandage was applied in all the cases. To this hospital are also attached Valude (operates every Thursday at 2 P.M.), Kalt, who sutures the corneal wound after cataract extraction to prevent hernia of the iris, and others. Regular instruction in ophthalmology, illustrated by cases from the vast supply of clinical material at hand, is given by members of the staff and is practically free to all comers. The assistants in this hospital have unusual opportunities for doing major operations upon the eye. They are chosen by competitive examination and the appointments are eagerly sought after.

Landolt (12 to 2, at his clinic, Rue St. Andre' des Arts, 17) is the ophthalmologist who has translated into simpler language those complicated formulæ connected with physiologic optics to be found in the exhaustive treatises of Helmholtz and Donders. Indeed, most of the smaller works and text-book chapters on the refraction of the eye, that have appeared during the past ten years, have been copied from his masterpiece, "On the Refraction and Accommodation of the Eye." He is still a young man and speaks and writes admirable English. Every American visitor or student may count upon receiving a cordial welcome from him. I regard his early and smaller work on the "Examination of the Eye" as the best thing of the kind yet published. Unfortunately, it has been out of print for several years and so far, the author has not seen fit to re-write it.

The *Hospice de la Salpêtriere*, combination of hospital, poorhouse and lunatic asylum with its 3,800 beds for women has attached to it, as surgeon oculist, Dr. Parinaud (his own clinic in the *Avenue de Clichy*, No. 50, is held daily) who is probably best known as an authority on hysterical amblyopia and on the relations of the eye to nervous diseases generally. I saw

several of his cataract cases where the corneal incision was made, without subsequent iridectomy, within the clear cornea in such a manner (he claimed) as to insure early healing of the wound and to form a sort of corneal dam against extrusion of the iris. His clinic is a very interesting and instructive one and might, with benefit, be attended by every medical visitor to Paris. He speaks little or no English. Parinaud's first assistant, Morac, has also written extensively on subjects of special interest to the neurologist.

The personality of Galezowski, one of the oldest and best known oculists in the French capital (Rue Dauphine, 41, daily 1 to 3, operates 3 to 4) rises superior to one's judgment of him as an ophthalmologist. He has by far the largest private clinic in Paris and probably as large a student following as any other teacher. In his overcrowded and far from (surgically) clean operating room, aseptic conditions can not possibly be obtained nor was there, so far as I could learn, that attention given to the measurement of refractive errors or the correction of muscular anomalies which one sees in some French and in most English dispensaries. Still there is a peculiar fascination about the man and his teachings that seems very attractive to students and patients. At the same time one can not help wondering whether the enthusiastic hopes of these patients are more frequently realized than are the calmer prognoses extended to the *clientèle* of other dispensaries. The crowd at Galezowski's seems as large and expectant as when I first visited Paris in 1886. I do not intend by these words to depreciate the work which Galezowski has done for medicine generally, because that is valuable and forms a part of modern ophthalmology.

This ophthalmologic sketch would be incomplete without a reference to Dr. George J. Bull (4, Rue de la Paix, 2 to 4 daily) an American graduate, who has won a place in the front rank of Parisian oculists. He was associated for a number of years with Javal of ophthalmometer fame and that instrument probably owes more to Bull than he is willing to admit. At any rate his compatriots in medicine will always find him willing to advise them as to the best way to get about the Paris hospitals.

I regret that I was unable to visit Meyer, Oswalt, Darier or d'Espagnet as I intended, and will, consequently, say nothing about them, but the man who is interested in diseases of the eye ought, when time permits, look them all up.

Since I last visited this city, several surgical instrument makers and dealers in optical apparatus have come to the front. In addition to the well known firms of Collin, Nachet and Lüer (now at No. 6, Rue Antoine-Dubois) I have had satisfactory dealings with Roulot, 58 Quai *des orfeores* and Major et Genisson, Rue Racine 23. As the question of surgical appliances so frequently arises in the case of the medical traveler, let me give it to you as my opinion that London still retains her old preëminence as the place to buy most cutting instruments, but that in other respects New York excels. With the exception of certain *souvenirs de voyage*, which one picks up in every city, and the knives and scissors of London, I would not now buy a franc, a gulden or a mark's worth of office furniture. It can be better and almost as cheaply purchased in our own country. I believe that we shall be able, before many years, to say the same thing about our medical instruction. At least such is the impression made upon me, by comparing what I have, so far, seen of French, German and English methods. In my next letter I hope to give you my experiences of some Dutch and German hospitals.

(*To be continued.*)

NO BOYLSTON PRIZE AWARDED.—The Boylston Medical Committee of the Harvard Medical School awarded no prize this year.—*Boston Medical and Surgical Journal.*

The Reorganization of the Harlem Hospital of New York.

NEW YORK, Aug. 8, 1895.

To the Editor:—There have been some changes recently made in the medical management of the Harlem Hospital of New York, by the Commissioners of Public Charities and Corrections, and connived at by the faculties of two medical colleges, which every honest, fair-minded member of our profession must look upon as most reprehensible, harsh and unjust.

With the advent of those new officers who came in with the change in politics, in the early spring, a disgruntled member of the profession who had been expelled from the hospital service, through one of the newspapers made a savage attack on the entire medical staff of the Harlem Hospital. Shortly after this, without an intimation of any description beforehand, the Commissioners—a board of laymen—gave notice of a reorganization of the Harlem Hospital staff. This staff consisted of Dr. John G. Truax, visiting physician and executive president; Dr. S. T. Armstrong, visiting physician; Drs. Thomas H. Manley and C. B. White, visiting surgeons, and Dr. A. Palmer Dudley, gynecologist.

As soon as the medical board came into possession of the knowledge of the proposed changes, or reorganization, they appealed to the Commissioners for an explanation, who answered, that they proposed to transfer the medical management of the hospital over to the three medical colleges and the ex-collegiate of Bellevue, and that if the former members were renominated by the colleges, they—the Commissioners—would appoint them; at the same time the medical board being assured that there were no charges against them. Three members of the medical board were graduates from out of town; one, Dr. Truax, from Rush, of Chicago; Dr. Armstrong from St. Louis, and Dr. Dudley from Dartmouth, N. H. Dr. Manley was a graduate of the University of New York, entering the hospital service as an interne in 1875. Dr. Chas. B. White was a graduate of the Bellevue Hospital Medical College, entering the service through that faculty.

It therefore would seem certain that, under the circumstances, Drs. Manley and White, who were graduates of New York colleges, would be vindicated and returned to the service. In the meantime, the Commissioners enlarged the hospital staff from five to eight, abolishing the gynecologist and requiring the colleges and ex-collegiate to make each two nominations. And now comes the most despicable part played by the two medical colleges, who ignored their plain and imperative duty to defend their own alumni. Both Bellevue and the University took advantage of the opportunity to nominate four physicians, in spite of a strong protest from the County Medical Association.

The College of Physicians and Surgeons has alone stood out, and delayed nominating, until it is assured by an investigation, that no injustice is to be imposed on the medical board dropped out.

This, certainly, is a magnificent position for a faculty to take, not to be a party to, and not to connive at any scheme which has for its object the imposition of a serious injustice on a body of physicians who have performed their duty with fidelity and conscientious attention, over a period of several years and without a farthing of compensation.

It is reported that the matter is to be made the subject of a most thorough and searching investigation, in the early autumn, in the County and State Medical Associations of New York.

JUSTITIA.

A Case of Sepsis Simulating Disease of the Brain.

PAWNEE CITY, NEB., Aug. 10, 1895.

To the Editor:—The following case being so unusual as to the symptoms, I think worthy of a place in the JOURNAL. Mrs. M., was on June 14 delivered of a female child at term. Labor lasted only two hours, but placenta remained until my arrival six hours afterward. Placenta was easily delivered and everything went well until June 20, when patient com-

ained of severe occipital pain. A few doses of acetanilid mp. relieved the pain. I saw the patient the next day; e was feeling well; the lochia and lacteal secretion nor- al, temperature normal but pulse 90.

June 23, during my absence, Dr. Wright was called and und patient had been unconscious for a short time, with voluntary discharges from the bowels. At the time of his sit, consciousness had returned, but there was trembling nd nervousness with some difficulty of speech. Tempera- re 99½ degrees F. I saw the patient the following morn- g at 9 o'clock. Pulse 120 and small, temperature 98½. onscious but can talk only in monosyllables. Says "no" to early all questions; sighing respiration; abdomen flat; no enderness; no disturbance of vision; tongue clean. June 5, had a restless night. Pulse, 130, temperature 100 degrees. ighing respiration. Lacteal secretion free, but she pays no ttention to babe when put to the breast. Answers all uestions by saying, no. Is evidently embarrassed when she nswers wrong. About 9:40 had a slight convulsion, limited o ocular muscles and the right side of face. This was fol- owed by stupor and great prostration. Urine highly col- red but contains no albumin. Treatment consisted in the se of pot. bromid and gelsemium with free stimulation. he uterus was thoroughly irrigated with 5 per cent. solu- ion of creolin. Some clots with much prune juice colored naterial was washed out.

June 26, patient rested well, mind clearer, answers ques- ions correctly but hesitatingly and in monosyllables. No ain, no tenderness. Abdomen flat. Has not full control of owels and bladder. Temperature 99 degrees; surface cool nd clammy. Sighing respiration; great weakness. Treat- nent continued as yesterday.

June 27, rested better, sighing less, pulse 100, temperature 9 degrees. Frequently makes pressure with both hands to orehead, but when asked if head aches answers, no. Never peaks unless questioned.

June 28, temperature 100 degrees, pulse 120. Rational; no ain; asks about the baby for the first time.

June 29, temperature 99 degrees, pulse 108. Rational, but ull. Has not full control of bowels and bladder. The pa- ient continued to improve slowly to complete recovery. ron, quinin and strychnin were resorted to after the acute ymptoms were passed. This was undoubtedly a case of epsis, although the symptoms were entirely different from ny heretofore encountered in an experience of eighteen ears. The convulsion, the aphasia, the sighing respiration, he occipital pain, the paresis with a low temperature are ertainly anomalous symptoms, and but for certain other ontradictory evidence would lead one to suspect clot or ongestion of the brain.

The free secretion of mammary glands, with no stoppage of lochia, are also to be set down as unusual in a case of this kind.

A. B. ANDERSON, M.D.

Fibroid Tumors of the Uterus.

CHICAGO, Aug. 16, 1895.

To the Editor:—In his address before the Gynecologic Section of the AMERICAN MEDICAL ASSOCIATION (JOURNAL issue Aug. 10, 1895), Dr. Franklin Martin has grossly misrepresented my work and I beg a short space in our JOURNAL to reply.

Dr. Martin stated that I "still open the abdomen with the deliberate intention of removing the appendages for fibroids." On the contrary, it is my invariable custom to do hysterectomy for fibroid tumors of the uterus, and I only resort to the removal of the appendages when the condition of the patient makes it unsafe to subject her to the added risk of complete removal. It is true that when I do perform the "makeshift operation of removal of the appendages," I also tie the uterine arteries as they course through the broad ligaments. Dr. Martin's claim that this procedure is simply his operation applied "from above," is, to say the least, surprising. I employed this method before I ever heard of Dr. Martin's operation (vaginal ligation of the uterine artery), but had I followed him in the matter of time, the invention of new operations would, indeed, become a matter of difficulty if two such different procedures are to be considered one and the same operation. Far from lagging behind in the matter of hysterectomy, I am convinced that I was one of the first in this city to follow the great step in advance made by the New York and other gynecologists in removing the uterus in bilateral diseases of the appendages. Indeed, if my memory serves me, Dr. Martin was one of those to oppose this procedure, but I warned him then, that it marks a new era in gynecologic surgery, and again I admonished him that he may not be left in the ranks of the "beginner and the timid."

And lastly, Mr. Editor, had Dr. Franklin Martin ever enjoyed a personal knowledge of the work of the "Birmingham sage" I doubt if he would have acquired the impression that he belonged to the ranks of the "beginner and timid." A man who has done nearly forty consecutive hysterectomies for fibroids without a death could hardly be considered an amateur, neither could he reasonably be suspected of being afflicted with that disease of youth, "timidity."

Far from desiring "to shake off entirely the teaching of the Birmingham sage," I am proud that it has been my good fortune to have been a pupil of so great a master as Mr. Lawson Tait.

Respectfully, BYRON ROBINSON.

An Opinion of the Journal.

QUINCY, ILL., Aug. 9, 1895.

To the Editor:—The JOURNAL has been made so useful, its tone so excellent, and its articles so helpful to physicians and surgeons that none of them can afford to do without it. In the past, many many useful methods and facts have been lost for want of a public journal belonging to everybody, to permanently record them.

H. W. K.

BOOK NOTICES.

Publications du Progres Medical, Paris. *14 Rue des Carmes, Paris. Bibliotheque d'Education Spéciale, tome IV. Assistance, Traitement, et éducation des enfants, idiots et dégéneres. Rapport fait au Congrès National D'Assistance Publique (Session De Lyon, Juin, 1894). Par* BOURNEVILLE. *Vol. in 8vo, de 246 pages avec 28 figures. Prix. 3 fr. 50.*

This is a report on assistance of idiot children and degenerates, by the learned and accomplished Bourneville. We have before mentioned, in one of our book notices, the appreciative mention by Bourneville of the labors of the lamented Séguin, and the same fairness and *noblesse oblige* is seen in this report. The volume begins with a historical review of assistance and treatment of idiotic and degenerate children in which our own country is given due credit for its work in this direction. The second chapter discusses the assistance to this unfortunate class in the departments of France. The number of admissions to each institution are given. Chapter 3 describes the private establishments devoted to idiot children, epileptics and degenerates in France. Chapter 5 contains a report on the assistance given this class in Europe. The age and capacity of each institution is mentioned, and as well their special features. Chapter 6 is devoted to the institutions of the United States. The works of Séguin, Woodward, Backus, Howe, Fernald, Wilbur, Browne, Richards, Knight and Miller receive appreciative mention. Chapter 7 takes up the condition of asylums for idiots in South America, and as might be anticipated there is little done. Bolivia, Colombia, Chili and the Argentine Republic are without special institutions. There is no report from Brazil. Chapter 8 discusses in detail the motives which justify assistance, treatment and education of idiots and degenerates and the form or methods of assistance.

The second part of this publication contains the discussion on the report which was held by the National Congress

of Public Assistance in June, 1894, under the presidency of Dr. Carrier.

The third part gives an elaborate summary of the existing state of medico-pedagogic treatment of the idiot. The illustrations show some novel gymnastic appliances.

After reading this work we can with much pleasure repeat the saying of the President of the Congress, that if Séguin were the "first of the first" in this humane work, Bourneville was easily the first of the second.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York city. In Twenty Volumes. Volume III. Occupation, Diseases, Drug Habits, and Poisons. New York: William Wood & Company. 1895.

This volume of this unsurpassed series contains: 1, an article on Alcoholism and Drug Habits by Norman Kerr, M.D., London. This article is exhaustive and occupies 137 pages of the work. The author in his treatment of alcoholism, declaims against alleged specific medication, and insists that special treatment is required for nearly every case. 2, a pithy article of thirty pages, by Geo. F. Shrady, M.D., on Shock and Collapse. 3, an excellent and highly entertaining article by Medical Director A. L. Gihon, U. S. N., on Sea Sickness. 4, an article by Georg Von Liebig, M.D., of Munich on Mountain Sickness. 5, on Ostemalacia, by W. T. Councilman, M.D., of Boston. 6, Heat Stroke, by Medical Director Gihon, U. S. N. 7, Frost-bite, by the same. 8, The Diseases of Occupations, by James Hendrie Lloyd, M.D., of Philadelphia. This is the most elaborate section in this volume and contains 186 pages. In the historical notes accompanying this paper, he begins with the classic work of Ramazzini and reviews the literature to date. There is some looseness in the manner of quotation; for instance, Lloyd in quoting Patissier, says, p. 512: "As an example of Patissier's method and acumen the following may serve: 'Pastry cooks,' he quotes, 'are less debauched than bakers, and more gentle and sociable! He thinks he sees in pie dough a mysterious influence that renders a man more sweet and companionable than his fellow who makes bread. This extravagant deduction is on a par with much that has been and still is being written on the influence of occupation on health."

Now nothing written by Patissier carries any such inference. The following is an exact translation from Patissier, p. 195–196:

"Diseases of Pastry Cooks.

"The pastry cooks are exposed to the same diseases as bakers; however, they are less intense. The flour often renders their eyelids bleared; as they always carry their hands toward the fire, it sometimes follows, that on the surface of the metacarpus, squamous herpes appears, the cure of which is very difficult. M. Cadet-Gassicourt said that these workmen are less debauched than bakers and more mild and sociable."

This is the entire reference of Patissier to the pastry cook, and the reviewer submits that Dr. Lloyd has unintentionally perhaps, misrepresented Patissier. The remaining portion of this section is excellent.

9, Poisoning, by Beaumont Small, M.D. of Ottawa. 10, Poisoning from Lead, Arsenic, Zinc, Copper, Mercury, Silver, and Phosphorus, by James Stewart, M.D. of Moptreal.

As a whole, the volume is up to the high standard of its predecessors.

Skiascopy and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc., etc.

The author of this little book belongs to those who from the beginning have recognized the great practical value of the shadow test in the examination of refraction. He has given the subject special attention, and is particularly well qualified to write on it. His book, therefore, bears the stamp of personal experience and original observation, and can not be too highly recommended to every oculist and physician desirous of becoming thoroughly familiar with the theory and practice of skiascopic examination.

Syphilis in the Innocent, CLINICALLY AND HISTORICALLY CONSIDERED, WITH A PLAN FOR THE LEGAL CONTROL OF THE DISEASE. By L. DUNCAN BULKLEY, A.M., M.D. 8vo, cl., pp. 398. New York: Bailey & Fairchild.

This work is the result of ten years' work by the author, and is an extremely valuable contribution to the study of syphilis. The occurrence of the disease among the innocent is so frequent that the wonder is, so small a part of syphilography has been devoted to this branch of the subject, and the profession generally has been placed under obligation to Dr. Bulkley.

Over one hundred categories of transmission of the disease have been given. There are very full tables illustrating the proportion of genital to extra-genital chancres; epidemics of syphilis which have occurred from 1577 to the present time (of which there are over one hundred). From page 241 to the end of the work, the volume is entirely devoted to the analytical bibliography of syphilis insontium.

The author in his plea for the legal control of syphilis says, p, 205:

"The time has certainly come, when the dangers of syphilis, and especially the dangers to innocent persons, should be fully recognized. It is too late in the history of science and of humanity to stigmatize the disease as 'venereal,' and on that account to withhold scientific protection from thousands of innocent sufferers. Among babies, nursing women, persons infected in dental or surgical operations, and in dozens of other manners, syphilis can no more be described as a 'venereal' affection than any other contagious disease. The time has come to place it under the control of the proper health officers, and make it quite as *criminal to transmit syphilis wittingly* as it is to communicate smallpox, scarlatina or diphtheria."

As a reference book it will be found the most complete of any on this subject.

Contribution à l'Étude de L'Atrophie musculaire progressive type Duchenne-Aran. Par le DR. J. B. CHARCOT. *Volume in 8vo, de 176 pages, avec 6 figures et 4 planches hors texte. Prix 5 fr.*

This work, which is dedicated by the son to Charcot, *père*, does not profess to be a monograph on Duchenne-Aran muscular atrophy, but is intended to clear up some points hitherto doubtful or obscure, from a clinical or anatomic point of view. The author says:

"This disease was first described by Duchenne (of Boulogne) and Aran as follows: 'An atrophy which develops in the adult age, comes on insidiously, and which begins in the small muscles of the hands, and slowly and progressively invades the periphery. . . . The muscles of the arms, the trunk, and finally the lower extremities become involved. Only rarely do the muscles of the tongue, pharynx and larynx become involved.'"

The author, after an exhaustive historical account of the affection, gives illustrations showing microscopic appearances of sections, and furnishes details of many original experiments. It is apparent that the son possesses much of the keenness of observation of the distinguished father.

Exercise and Food for Pulmonary Invalids. By CHARLES DENISON, A.M., M.D. Pp. 71, cl. Denver: The Chain & Hardy Company. 1895.

This little book contains an excellent system of rules for the guidance of the consumptive in the selection of articles of diet, and the performance of suitable exercise. Few can speak with more authority on this subject than Dr. Denison, and none with more practical common sense. The book is well written and deserves a wide circulation.

The Retrospect of Medicine. A half yearly journal containing a retrospective view of every discovery and practical improvement in the medical sciences. Edited by JAMES BRAITHWAITE, M.D., London, etc., etc. Volume III. Cl., pp. 411. January to June, 1895. London. Simpkin, Marshall, Hamilton, Kent & Co. Limited.

This well known volume continues to be issued, although the limited scope of the work prevents the editor from using more than a very scanty portion of the current literature.

PUBLIC HEALTH.

Typhoid Fever at Stamford, Conn.—Late reports from Stamford show that three hundred and thirty cases of fever have been reported, and twenty cases are under treatment in hospital. There are a few secondary cases. There are thirty trained nurses employed, under the relief fund, for families not able to engage them. The fund collected for the relief of the poor is $2,000. Dr. Edward J. Meeks was taken to the Presbyterian Hospital, New York; he is believed to have contracted the disease in the care of his own child. There are suspicions on the part of many of the residents that the eating of raw oysters has had its share in the development of the scourge. The health authorities do not vary from their original ground that the epidemic is one of "milk typhoid."

Alleged "Impossible" Death Rates.—Dr. F. W. Reilly, Assistant Health Commissioner of Chicago, recently quoted Deputy Surgeon-General John S. Billings, whom he styles the highest authority on vital statistics in this country, to the effect that a death rate of less than 18 in the thousand was incredible for a city so large as Chicago claims to be. The deaths reported in that city for 1894 were 23,892; the claimed population—that determined by the official census of April, last year—was 1,567,727 and the death rate on this basis was, consequently, 15.24 per 1,000. But at the minimum rate fixed by Dr. Billings—18 per 1,000—the population must be only about 1,327,000. This is by no means palatable to the civic pride of the Western metropolis, and a movement is on foot to secure an "authoritative" census, superintended by the Census Officer of the Department of the Interior. Meanwhile, Chicago should take what comfort may be got out of the fact that the Registrar-General's returns for the city of London recently showed a death rate for one week of only 15.5 per 1,000 in that city.

Sanitation of Flooded Regions.—A disaster somewhat similar to that at Johnstown, Pa., occurred this spring at Bouzy in the Department of Vosges, France. A dam of masonry, 500 meters long, 22 high and 20 wide, forming a reservoir containing 7,000,000 cubic meters of water, suddenly gave way and flooded the valley of the Avière for a distance of 20 kilometers, overturning houses, uprooting trees, and carrying away the inhabitants and domestic animals. When the waters subsided there was left on the land, beside ooze charged with organic matter, *debris* of all sorts, cadavers, and masses of slime and vegetable detritus. These deposits rapidly gave off disagreeable odors, and the survivors feared an epidemic. The General Hygienic Council of the Department, acting under the supervision of the French Consulting Committee on Hygiene, took measures to prevent this. The cadavers of animals were buried in deep trenches after being covered with quicklime; *debris* of all sorts was collected in heaps, sprinkled with sulphur and buried. The trees clogging up the river bed were removed and the stagnant water led off into trenches. The wells were condemned for the time being. Dwelling in the inundated houses, filled with slime, was forbidden. The walls were scraped, washed and calcimined, the floors washed and the furniture and hangings disinfected.

Spread of Cholera.—Recent cable advices indicate that from very small beginnings in the Russian province of Volhynia, cholera has suddenly made an expanding break in several directions, notably to the south and west. Various dispatches from Cracow, Lemberg and other points show that it is spreading rapidly in Austrian Poland. Still more circumstantial stories come from southern Russia, where the epidemic has reached the vicinity of Kief, and even, it is rumored, in the city itself. As usual, there is much activity in the line of quarantine restrictions, and it is probable that this extension will renew interest in the recent strictures of Inspector-General Proust of the French Sanitary Service on the English indifference to quarantine *per se*. Dr. Proust has declared that the refusal of Great Britain to apply the decisions of the International Conference is absolutely criminal, and that if Europe is invaded with cholera this summer, Great Britain will be to blame for it. Dr. C. W. Chancellor, U. S. Consul at Havre, says, however, that the attitude of Great Britain in ignoring quarantine and relying mainly on sanitation to restrict cholera is having its effect on international cholera policy; and again points out, as the late Dr. Rauch was wont to do, that "cholera quarantine, if ever it could be satisfactorily carried out, would be of no use excepting with regard to the one disease—cholera. Sanitation, on the other hand, even if primarily attended to for the special prevention of cholera, is, in its measure, useful in preventing other infectious diseases conveyable by similar means, such as typhoid fever, yellow fever, etc., and is useful also in raising the general average of health in every community."[1] This is the lesson of the situation for the United States. If cholera should spread throughout Europe this year we may not be able to shut it out from our shores by quarantine, but we can and should make our environment so wholesome and cleanly as that it shall be fatal to cholera as well as to all other of the filth diseases.

Never Again a Cholera Panic.—A newspaper interview of some of the New York health officers, regarding the delayed approach of cholera to these shores this year, has excited much interest. Hopeful and optimistic views prevail. Among others, Dr. Roger S. Tracy of the City Department was interviewed. He gave it as his opinion that there will never again be a cholera scare in New York like that of 1892, and that there is safety for that city so long as sanitary laws are well enforced, and wholesome water is abundantly supplied. Even if a few infected immigrants were to reach quarantine, there would be hardly any danger of the disease becoming epidemic, for the means of stamping it out are at the command of the governing powers. The health authorities of Germany, France and England are now confident of their ability to deal with cholera promptly and successfully. The Germans have this year had experiences even more satisfactory than those of last year, and have been able to guard their country by methods as scientific as they are easily applied. Dr. Tracy, in discussing the subject, applies to it the germ theory of disease with that fullness of confidence which is derived from long familiarity with it. "No cholera scare hereafter," he says. There can be merely guesses as to the extent to which the disease prevails in China. In the dispatches there are occasional references to its existence in the Liao-Tong peninsula, and in the kingdom of Corea, and there is every reason to believe that it has been very destructive in these regions. From the trustworthy statistics that are kept by the Japanese authorities, it is learned that up to the close of July there had been 9,500 cases of the disease in Japan, more than one-half of which had proved fatal. This fatality may be regarded as part of the price paid by Japan for her victory over the Chinese. In some other countries beside those here mentioned, including Mexico and Cuba, there had been cases of cholera during the year, but it has not been epidemic in any of them. It has been estimated by good authorities that the average yearly number of deaths from cholera, the world over, is close upon a quarter of a million. It is now known that in Russia alone last year there were nearly 100,000 cases of the disease, about 45 per cent. of which proved fatal; but the ravages of the disease among the Russians are light as compared with the losses among Asiatics.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Battle Creek and Detroit, July 26 to August 3, reported existing.
Tennessee: Memphis, August 3 to 10, 1 case.
Texas: Eagle Pass, July 29 to August 9, 115 cases, 6 deaths.

SMALLPOX—FOREIGN.

Buda-Pesth: July 16 to 23, 2 cases.
Cairo: July 2 to 8, 3 deaths.
London: July 20 to 27, 1 death.
Madrid: July 15 to 22, 4 deaths.
Moscow: July 6 to 13, 1 case.
Mexico: Nogales, July 26 to August 3, 1 death.

[1] The Sanitarian, August, 1895.

Prague: July 13 to 20, 2 cases.
St. Petersburg: July 6 to 20, 10 cases, 3 deaths.

YELLOW FEVER.

Havana: Month of July, 84 deaths.
Santiago de Cuba: July 13 to August 3, 124 deaths.
San Juan de Porto Rico: July 6 to 27, 104 cases, 67 deaths.
Santos: June 30 to July 6, 5 cases, 1 death.
Rio de Janeiro: June 30 to July 13, 22 deaths.
Vera Cruz: July 24 to August 1, 12 cases.

CHOLERA.

Hiogo: July 6 to 13, 104 cases, 87 deaths.
Yokohama: June 14 to 21, 1 death.

SOCIETY NEWS.

Mississippi Valley Medical Association.—*To the Editor:*—I inclose you the preliminary program of the Mississippi Valley Medical Association, to be held Sept. 3, 4 and 5. The first evening, Tuesday, September 3, Dr. Theodore A. McGraw will deliver an address on Surgery at Strassburg's Hall, the place of the meeting, and after this there will be given a reception by the profession of Detroit at the Cadillac. Wednesday evening an address on Medicine will be given by Dr. William Pepper of Philadelphia. Thursday evening the Association will be given a boat ride on the river. The profession here are very enthusiastic in their efforts to make the meeting a success.

HOTELS.—The Cadillac will be headquarters, $3.50 to $4 per day; Russell House, from $3.50 to $4 per day; Normandie, from $2.50 to $3 per day; Wayne Hotel, from $2 to $3.50 per day.

H. O. WALKER.

Detroit, Mich, Aug. 8, 1895.

Prognosis in Syphilitic Diseases of the Nervous System, by Chas. J. Aldrich, Cleveland; The Abortive Treatment of Typhoid Fever, by John Aulde, Philadelphia; Some Considerations with Regard to the Senile Heart, by Robert H. Babcock, Chicago; Ripening of Cataract, by James M. Ball, St. Louis; Legitimate Pharmacy, by William F. Barclay, Pittsburg; Asepsis in Bladder and Prostate Operations, by Wm. T. Belfield, Chicago; The Results and Conclusions Derived from an Experience of 165 Appendisectomies, by A. C. Bernays, St. Louis; The Deeper Inflammations of the Skin, by A. W. Brayton, Indianapolis; Psychology in Medicine, by A. P. Buchman, Ft. Wayne, Ind.; Toxic Amblyopia due to the Excessive Use of Tobacco, by A. E. Bulson Jr., Ft. Wayne, Ind.; Two Successful Operations for Insanity, with Remarks, by Geo. W. Cale, St. Louis; A Neurotic Form of Wry Neck, by Archibald Church, Chicago; Laryngitis from a Rhinologic Standpoint. by L. C. Cline, Indianapolis; Ulcers of the Leg, all can be Cured, by Carter S. Cole, New York city; Technique of Abdominal Hysterectomy, by A. H. Cordier, Kansas City; The American Diagnosis and Treatment of Fatty Degeneration and its Masquerades, by Ephraim Cutter, New York city; The Treatment of Acute Inflammation of the Middle Ear and Mastoid Process, by Edward B. Dench, New York city; Syphilis and its Treatment, by C. Travis Drennen, Hot Springs, Ark.; The Ordinary Duties of the Obstetrician, John Milton Duff, Pittsburg; Pyelitis; with Report of a Case, by P. M. Forshay, Cleveland; How to Correctly Diagnosticate Sexual Derangements in the Male, by Eugene Fuller, New York city; The Psychology of Suggestive Therapeutics, by William A. Galloway, Xenia, Ohio; Uterine Fibroids; when to Operate, by D. Tod Gilliam, Columbus; A New Phase of Celiotomy, by F. J. Groner; Some Sequels of La Grippe, by F. C. Heath, Indianapolis; Radical Cure of Hernia, by J. W. Heddens, St. Joseph, Mo.; Excision of the Auditory Ossicles, by Robert C. Heflebower, Cincinnati; Puerperal Sepsis; When is Hysterectomy Indicated? by Bayard Holmes, Chicago; Spot Specialism, C. H. Hughes, St. Louis; What is the Matter with the American Stomach? by J. H. Kellogg, Battle Creek, Mich.; Trephining the Spine for Pott's Disease; with Report of Eight Cases, by Emory Lanphear, St. Louis; Vertigo; with Report of a Labyrinthine Case, by H. M. Lash, Indianapolis; The Removal of Persistent Nodules after Epididymitis, by Bransford Lewis, St. Louis; Fracture of the Femur, by J. E. Link, Terre Haute, Ind.; The Bicycle from a Medical Standpoint, by I. N. Love, St. Louis; Annual Address on Surgery, by Theodore A. McGraw, Detroit; The Comparative Value of Medical and Surgical Treatment of Appendicitis, by F. Maass, Detroit; Retention Cystitis as a Consequence of Hypertrophied Prostate; with Report of Two Cases, by S. C. Martin Jr., St. Louis; The Indications for Operation in the early period of Ectopic Pregnancy, by L. S. McMurtry, Louisville; Peritonitis, by J. B. Murphy, Chicago; Medico-Legal Consideration of Hysteria, by Frank P. Norbury, St. Louis; Post Climacteric Hemorrhages, by H. O. Pantzer, Indianapolis; Annual Address on Medicine, by William Pepper, Philadelphia; The Anomalies of the Ear Degenerate, by Frederick Peterson, New York city; Epilepsy and Some of its Allied Conditions, by Curran Pope, Louisville; Celiotomy in Purulent Peritonitis; with Report of Case, by Miles F. Porter, Ft. Wayne, Ind.; Antitoxin Treatment of Diphtheria, by Theo. Potter, Indianapolis; The Revelations of the Trendelenburg Position, by Joseph Price, Philadelphia; (*a*), The Skin Diseases Amenable to Galvanism; (*b*), Local Anesthesia by Faradism, by Merrill B. Ricketts, Cincinnati; Treatment of Pulmonary Consumption in Hospitals, by E. L. Shurly, Detroit, Mich.; Cod Liver Oil and Cod Liver Extracts—Leucomaines and Ptomaines, by F. E. Stewart, Detroit; Complication in Cataract Arising from Diabetes, Albuminuria, etc., by J. O. Stillson, Indianapolis; How Shall We Rear Our Babies? by J. H. Taylor, Indianapolis; Auto-Intoxications, by Frank J. Thornbury, Buffalo; Carcinoma of the Stomach, by W. C. Weber, Cleveland; Pulmonary Tuberculosis; its early Diagnosis, by Edward F. Wells, Chicago; The Therapeutics of Oleo-Creosote and Creosote Carbonate. by J. A. Wessinger, Ann Arbor, Mich.; Rheumatism in its Relation to the Eye, by K. K. Wheelock, Ft. Wayne, Ind.; President's Address, W. N. Wishard, Indianapolis; Three Hysterectomies following operations for Pus Tubes, by J. H. Carstens, Detroit, Mich.; Treatment of Syphilis, by J. T. Jelks, Hot Springs, Ark.; Bio-Chemistry in its Relation to Nervous Diseases, by G. W. McCaskey, Fort Wayne, Ind.; New Light on the Rôle which Iron plays in the Physiologic Economy, by W. H. Porter, New York; Inguinal Colotomy vs. Total Extirpation of the Rectum, by Leon Strauss, St. Louis; Chronic Vesiculitis, with Hemorrhage, by S. P. Collings, Hot Springs; Some of the More Recent Methods of Staining Nerve Tissue (illustrated). The Diagnosis of Hysteria, by Hugh T. Patrick, Chicago; Wounds of the Peritoneum Due to Perforation of the Rectum by Pitchfork Handle, by Weller Van Hook, Chicago; Tubercular Peritonitis, by L. H. Dunning, Indianapolis; The Surgical Treatment of Local Disorders in Insane and Neurotic Women, by W. H. Manton, Detroit; The Treatment of Paralysis by Mechanico-Therapeutics, by E. H. McCullers, St. Louis.

Arrangements have been made whereby those attending the meeting can secure a round trip ticket on the certificate plan for one and one-third fare. Be sure and secure certificates of the local agent where you buy your ticket, which will be signed here by the Secretary, Dr. F. C. Woodburn.

NECROLOGY.

CHAUNCEY M. FIELD, M.D., died July 17, at Plainfield, N. J. He was a native of Bound Brook, in the same State, about 45 years of age. He was a graduate from the Medical Department of Columbia College in 1875.

W. A. BETTS, M.D., one of the best-known physicians in eastern New Jersey, died at Red Bank, on Sunday, the 4th inst. He was 61 years old, and was graduated from the College of Physicians and Surgeons, New York, in 1861.

WILLIAM E. NEWING, M.D., of Long Branch, N. J., died July 11, aged 29 years. He was a native of New Jersey, the son of William S. and Margaret W. Newing, and was educated in medicine at the College of Physicians and Surgeons, New York, of the class of 1888.

MISCELLANY.

Charitable Donations in New York City.—The executors of the late Hugh Reilly, of New York city, have distributed $9,500 among eighteen Hebrew charitable institutions and societies. The distribution was specifically provided for in the will of the deceased.

Sulphuric Acid.—From the action of sulphuric acid on the gas from cleveite, M. Deslandres has obtained in the extreme red of the spectrum, the third of the four lines in the solar spectrum that had not been found on the earth. This

one permanent ray from the solar atmosphere, ne, known as "the line of the crown," yet to be in earthly substances. It probably belongs to ighter than hydrogen.—*Scientific American.*

lity to Office of Physician in Benevolent Society.—ership in a mutual aid and benefit society, the Su- ne Court of Rhode Island holds, in the case of State v. ucher, decided May 10, 1895, is not necessary to render a erson eligible to the office of physician for the society here the by-laws thereof do not require it.

New Health Commissioner of New York City.—Dr. George B. owler, of New York city, recently received his appointment s Health Commissioner, *vice* Dr. Edson, resigned. He is bout 50 years old, a native of Alabama. He is a member of he Union League Club, the New York and Racquet Clubs, he County Medical Society, Academy of Medicine and the ociety of Medical Jurisprudence, and is a visiting physician o Bellevue Hospital and Infant Asylum. He was formerly onnected with the Health Board as medical inspector. He has practiced his profession in this city since 1871, at hich date he was graduated from the College of Physicians nd Surgeons, of New York.

The Hodgkins Prizes of the Smithsonian Institution.—In March, 893, the Smithsonian Institution announced that the in- ome of a fund, the gift of T. G. Hodgkins, of Setauket, N. Y., would be expended in prizes for the best articles and orig- inal researches on the nature and properties of atmos- pheric air in relation to the welfare of man. Three prizes were offered, one of $10,000 for the most important discov- ery, a second of $2,000 for a treatise on the relations of air to the various sciences and the best lines of direction for future research, and a third of $1,000 for a popular essay on atmospheric air. Wide publicity was give to the announcement, with the result that when the period allowed for the competition closed on Dec. 31, 1894, papers had been received from all parts of the civilized world. It is offi- cially announced that 218 contestants submitted papers in competition for the three prizes. The subject must have been discussed thoroughly in this symposium; and the members of the Committee of Award may be regarded as on the advanced line in this direction of scientific inquiry. The committee consisted of: Dr. S. P. Langley, Chairman, *ex- officio;* Dr. G. Brown Goode, appointed by the Secretary of the Smithsonian Institution; Deputy Surgeon-General J. S. Bill- ings, U. S. Army, by the President of the National Academy of Sciences; and Prof. M. W. Harrington, by the President of the American Association for the Advancement of Sci- ence. These were assisted in their work by a foreign Ad- visory Committee, composed of the late Professor Huxley, of M. Jenssen, of the French Academy of Sciences, and of Professor Wilhelm von Besold, Director of the German Meteorological Service. The committee announced Aug. 6, 1895, the following decisions:

First prize, of $10,000, for a treatise embodying some new and important discoveries in regard to the nature or prop- erties of atmospheric air, to Lord Rayleigh, of London, and Prof. William Ramsey, of University College, London, for the discovery of argon, a new element of the atmosphere.

The second prize, of $2,000 is not awarded, owing to the failure of any contestant to comply strictly with the terms of the offer.

The third prize, of $1,000 to Dr. Henry de Varigny, of Paris, for the best popular treatise upon atmospheric air, its prop- erties and relationships. Dr. de Varigny's essay is entitled "*L'Air et la Vie.*"

Honorable mention and silver medal: Mr. A. L. Herrera and Dr. Vergara Lopez, of the National Museum, Mexico, "La Atmosfera de las altitudes y el bienstar del hombre;" Geo. L. Madsen, Esq., Villa Bregnehög, Helsigör, near Copenha- gen, Denmark, "Thermogeographical Studies;" F. A. R. Russell, Esq., Vice-President of the Royal Meteorological Society of Great Britain, "The Atmosphere in relation to Human Life and Health."

Honorable mention and bronze medal: Dr. Franz Oppen- heimer and Dr. Carl Oppenheimer, of No. 4 Eichendorff Street, Berlin, "Uber atmospharische Luft, ihre Eigen- schaften und ihren Zusammenhang mit dem menschlichen Leben;" Mr. Alexander McAdie, of the United States Weather Bureau, "The known properties of atmospheric air considered in their relationships to research in every depart- ment of natural science, and the importance of a study of the atmosphere considered in view of these relationships; the proper direction of future research in connection with the imperfections of our knowledge of atmospheric air and the conditions of that knowledge with other sciences;" Dr. O. Jesse, of Berlin, "Die leuchtenden Nachtwolken;" Mr. E. Deberaux-Dex, and Mr. Maurice Dibos, of Rouen, France, "Etudes des courants aériens continentaux et de leur utili- sation par des aérostats long-courriers;" Mr. Hiram S. Maxim, of Kent, England, "Natural and Artificial Flight;" Dr. A. Loewy, of Berlin, "Untersuchungen über die Respira- ration und cirkculation unter verdünnter und verdichteter Sauerstoffarmer und sauerstoffreicher Luft."

Honorable mention: Surgeon Charles Smart, U. S. A., "An Essay on the Properties, Constitution and Impurities of Atmospheric Air, in relation to the promotion of Health and Longevity;" Dr. A. Marcuse, of the Royal Observatory, Ber- lin, "Die atmosphärische Luft;" Dr. F. J. B. Cordeiro, U. S. N., "Hypsometry;" Dr. A. Magelssen, of Christiania, Norway, "Ueber den Zusammenhang und die Verwandschaft der biologischen, meterologischen und kosmischen Erschei- nungen;" Prof. C. Nees, of the Polytechnic School, Copen- hagen, Denmark, "The use of kites and chained air-balloons for observing the velocity of winds, etc.;" Prof. F. H. Bige- low, of the United States Weather Bureau, "Solar and Ter- restrial Magnetism and their relation to Meteorology;" E. C. C. Baly, Esq., of University College, London, "The decom- position of the two constituents of the Atmosphere by means of the passage of the Electric Spark;" Dr. F. Viault, Faculty of Medicine, Bordeaux, France, "Découverte d'une nouvelle et importante proprieté physiologique de l'Air atmosphérique. (Action Hématogène de l'air raréfié.); Prof. Dr. S. Geisler, Bonn, Germany, "Mittlere Tagestemperaturen von Bonn, 1848–88;" Prof. Emile Duclaux, of the French Institute, Paris, France, "Sur l'actinométrie atmosphérique et sur la constitu- tion actinique de l'atmosphère;" Dr. J. B. Cohen, Yorkshire College, Leeds, England, "The Air of Towns,"; Dr. Ludwig Ilosvay von Nagy Ilsova, Professor in the Royal Joseph Polytechnic School, Buda-Pesth, Hungary, "Ueber den un- mittelbar oxydirenden Bestandtheil der Luft."

Philadelphia Notes.

Dr. Robert I. Harris, the well-known correspondent, and statistician of Cæsarean section and of symphyseotomy, has been very ill during the past fortnight with an attack of hemiplegia, the results of which threaten to be serious.

The weather during July was much cooler than it has been for years and the hospitals had little opportunity to put to practical test their appliances for treating sunstroke. The health of the city has been exceptionally good, largely owing to the cleanliness of the streets; the Director of Public Works having had his efforts in this direction greatly stim- ulated by the Health Protective Association composed of public-spirited women, who have ideas on the subject of clean streets and do not care who knows them.

The Pennsylvania Legislature, at its session which recently closed, passed an act "prohibiting the exhibition of insane, idiotic, deformed or imbecile persons in any public hall, museum, theater, tent or building for a pecuniary consider- ation or reward." The offense is punishable by a fine not exceeding $1,000 or imprisonment not exceeding six months. The police lieutenants of Philadelphia have just been fur- nished with copies of this act of Assembly and have been di- rected to secure its enforcement.

The physicians in charge of the State Hospital for the Insane at Norristown, in a communication to the managers last week, reported an epidemic of dysentery and bowel dis- order in both departments, the cause of which has not yet been ascertained.

Washington Notes.

HEALTH OF THE DISTRICT.—The death rate continues to fall. According to the reports received at the Health Department during the last week there were 103 deaths, and the annual rate was 19.79 as compared with a rate of 20.06 for the week previous. So far as the range of diseases is concerned, the week's health history indicates very slight variation from the several immediately preceding reports. None of the dangerous contagious diseases present a phase causing anxiety to the medical profession. The four deaths from typhoid fever reported in the former week were followed by three more fatal cases last week. There were but twenty-eight deaths from this malady in the first six months of this calendar year, while since the first of last month twelve deaths therefrom have been reported. In other respects the condition of the public health is favorable; infant mortality is on the decline, and the rate of mortality is 3 per 1,000 inhabitants below the normal.

DISPENSING MEDICINE TO THE POOR.—The Health Officer has decided to abolish the old plan of having prescriptions for the poor filled at the drug stores. The new system provides that all standard medicines be purchased in tablet form direct from the pharmacists, to be kept in stock and supplied to physicians in pocket cases as needed. In treating a case the physician is not to write a prescription and send to the druggist for it to be filled, but will deliver the medicines at once, thus saving much time. It is not intended to have this new system superseded by the old one entirely at present, but it is to be tried to determine its utility and saving of money.

PHYSICIANS TO THE POOR MUST PASS MEDICAL EXAMINATION. Directly in line with their intention to apply civil service to the District government as far as possible, the Commissioners to-day approved a recommendation of the Health Officer, which takes in the physicans to the poor, and compels applicants for such positions to pass a competitive examination. The Health Officer's recommendation, which has been approved by the Commissioners and issued to-day as an order, says: "That the board to examine practitioners of regular medicine, seeking appointment as physicians to the poor be composed of the attending physician to the Washington Asylum, the medical sanitary inspector of the Health Department, one member of the Board of Pharmacy and one member of the Board of Police Surgeons. The questions should be prepared and answers examined and marked by this board. The examination itself should be conducted by clerks from the Health Department. Candidates passing successfully the written examination should be required, as a practical test of their ability, to examine and to diagnose and outline proposed treatment for one or more patients at some public hospital or dispensary.

THE DOCTORS FOR SENATOR GORMAN.—The medical profession is watching with great interest the political fight of Senator Gorman in Maryland. He is sure to be successful and the doctors are with him. Senator Gorman has always been the friend of the medical profession and enthusiastic in all important medical and sanitary questions. As a member of the Appropriations Committee of the Senate, his good offices have always been exerted in the direction of the most liberal expenditures for the extension of the influence of the Marine-Hospital Service, and he has always appreciated the importance of ample appropriations to guard against the inroads of yellow fever and for the extension of quarantine regulations. To his effort was due the passage of the Congressional appropriation bill which, at the last moment, made the First Pan-American Medical Congress a grand success. Apropos of the success of his exertions, was the brilliant reception to the delegates to the Congress, by the Maryland profession, at Baltimore, on the occasion of their visit to that city.

SENATOR GREY AND A NATIONAL BUREAU OF HEALTH.—Another matter of considerable interest to the medical profession, is the gossip which connects the name of Senator Grey, of Delaware, with the next Democratic nomination to the Presidency. It is now well known, as a fact already communicated to the nearest friends of the Pre
the latter does not expect, and in fact will not
nomination for a third term. It is also more or
that the friends of the President will control the
the next Democratic National Convention. This be
case, it may be possible for these Cleveland Democr
they are known, to virtually name who shall be
Presidential nominee. If it shall be impossible to nomin
either Secretary Carlisle or ex-Secretary Whitney, and th
latter says he will not accept the nomination, it is known
that the President would be glad to see Senator Grey receive
the honor. Mr. Grey has always been a steadfast friend of
the administration, and as far as the President can aid him,
his ambitions will be advanced in the convention. This
being the case, it is interesting to note that Senator Grey
has been one of the few national legislators who has always
been favorable to the creation of a National Bureau of Health
A bill looking to the formation of such a bureau was introduced in the last Congress by Senator Grey and was advocated by him, although in the press of other important matters it did not receive the attention it deserved. Should he be nominated and eventually elected, the medical profession would have an enthusiastic friend in the White House, and the creation of a Bureau of Health with a possible cabinet officer at its head, would be a possibility.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 3, 1895, to August 9, 1895.

First Lieut. CHARLES F. KIEFFER, Asst. Surgeon U. S. A., is granted leave of absence for two months.

Major EZRA WOODRUFF, Surgeon (Ft. Keogh, Mont.), is granted leave of absence for one month.

First Lieut. WILLIAM F. LIPPITT Jr., Asst. Surgeon (Ft. Leavenworth, Kan.), is granted leave of absence for two months.

A board of officers, to consist of; Col. DALLAS BACHE, Asst. Surgeon-General; Major HENRY MCELDERRY, Surgeon; Major JOSEPH K. CORSON, Surgeon, is appointed to meet at Ft. Robinson, Neb., on Friday, Sept. 6, 1895, for the examination of Capt. LOUIS W. CRAMPTON, Asst. Surgeon, with a view to determining his physical fitness for promotion.

A board of officers, to consist of; Major PHILIP F. HARVEY, Surgeon; Major GEORGE H. TORNEY, Surgeon, and Capt. CHARLES F. MASON, Asst. Surgeon, is appointed to meet at West Point, N. Y., Aug. 15, 1895, or as soon thereafter as practicable, for the physical examination of the cadets of the first and third classes; the cadets of the second class on their return from furlough, and such other cadets of the U. S. Military Academy, and candidates for admission thereto, as may be ordered before it.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 10, 1895.

Surgeon C. G. HERNDON, detached from Bureau of Medicine and Surgery, to duty on the "Lancaster."

P. A. Surgeon F. C. BRATHWAITE, detached from naval hospital, Norfolk, Va., to duty on the "Lancaster."

P. A. Surgeon E. R. STITT, detached from special duty, and ordered to the "New York."

P. A. Surgeon J. F. URIC, detached from the "New York," and granted two months' leave.

P. A. Surgeon I. W. KITE, detached from the monitors, to duty on the "Franklin."

P. A. Surgeon L. L. YOUNG, detached from the "Franklin," to duty at naval hospital, Norfolk, Va.

LETTERS RECEIVED.

Alta Pharmacal Co., New York, N. Y.; Anderson, Willis S., Detroit, Mich.

Bernd, Henry & Co., St. Louis, Mo.; Braymer, O. W., Camden, N. J.; Bodine, J. M., Louisville, Ky.; Blakiston, P., Son & Co., Philadelphia, Pa.; Barnett, J. T., Hardinsburg, Ind.

Coholan, M. J., New Britain, Conn.; Cone, Andrew, New York, N. Y.

Davies, W. H., Maquoketa, Iowa; Deane, W. J., Buffalo, N. Y.

Ettinger, C. S., (3) New York, N. Y.

Fuller, Geo. W., Lawrence, Mass.

Gibbs, A. E., Chicago, Ill.; Gibbons, H. Jr., San Francisco, Cal.; Globe Mfg. Co., Battle Creek, Mich.

Hummel, A. L., (2) Philadelphia, Pa.; Hansen Harold Co., New York, N. Y.; Henrotin, F., Chicago, Ill.

Imperial Granum Co., New Haven, Conn.

Kern, W. B., Hastings, Neb.; Kittredge Company, New York, N. Y.

Lord & Thomas, Chicago, Ill.; Lyon, S. B., Chicago, Ill.; Loeb, Hanau W., St. Louis, Mo.; Lillard, Benj., New York, N. Y.

Magruder, G. L., Washington, D. C.; Medlin, P. O., St. Louis, Mo.; Martin, Jeffrey, Montrose, S. D.

North, L. G., Tecumseh, Mich.

Parmele, Chas. Roome, New York, N. Y.; Parke, Davis & Co., Detroit, Mich.; Publishers' Collection Agency, St. Paul, Minn.; Polk, R. L. & Co., Detroit, Mich.; Pollock, R. M., Princeton, Ill.

Renz & Henry Pharmacal Co., Louisville, Ky.; Roedel, H. H., Lebanon, Pa.

Thompson Laboratory Co., Washington, D. C.; Tibbes, L. Rockford, Ill.

Wishard, W. N., Indianapolis, Ind.; Washburn, A. A., Clinton, Ind.; Woodruff, L., Alton, Ohio.; Watkins, W. W., Moscow, Idaho.